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CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of the City

DURING THE YEAR

1916.



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SANITARY COMMITTEE.

Councillor C. T. STABLEFORTH, J.P., Chairman.

„ DAVID ADAMS, J.P., Vice-Chairman.

The Lord Mayor (Councillor GEORGE LUNN, J.P.).

Alderman SIR JOSEPH BAXTER ELLIS, J.P.

„ ADAM WILSON, J.P., L.R.C.P.

„ C. C. ELLIOTT.

„ ROBERT FLOWERS.

„ G. G. ARCHIBALD.

„ W. J. SANDERSON, J.P.

Councillor WALTER LEE, J.P. Councillor EDWARD LONSDALE.

„ THOS. MATTHEWSON. „ W. O. WEDDLE.

„ W. E. HARKER. „ THOS. CRUDDIS.

„ WM. BECKETT. „ JOHN CHAPMAN.

„ ALEX. WILKIE, M.P., J.P. „ ADAM TINDALL.

„ JAS. SMITH. „ JNO. BARKER.

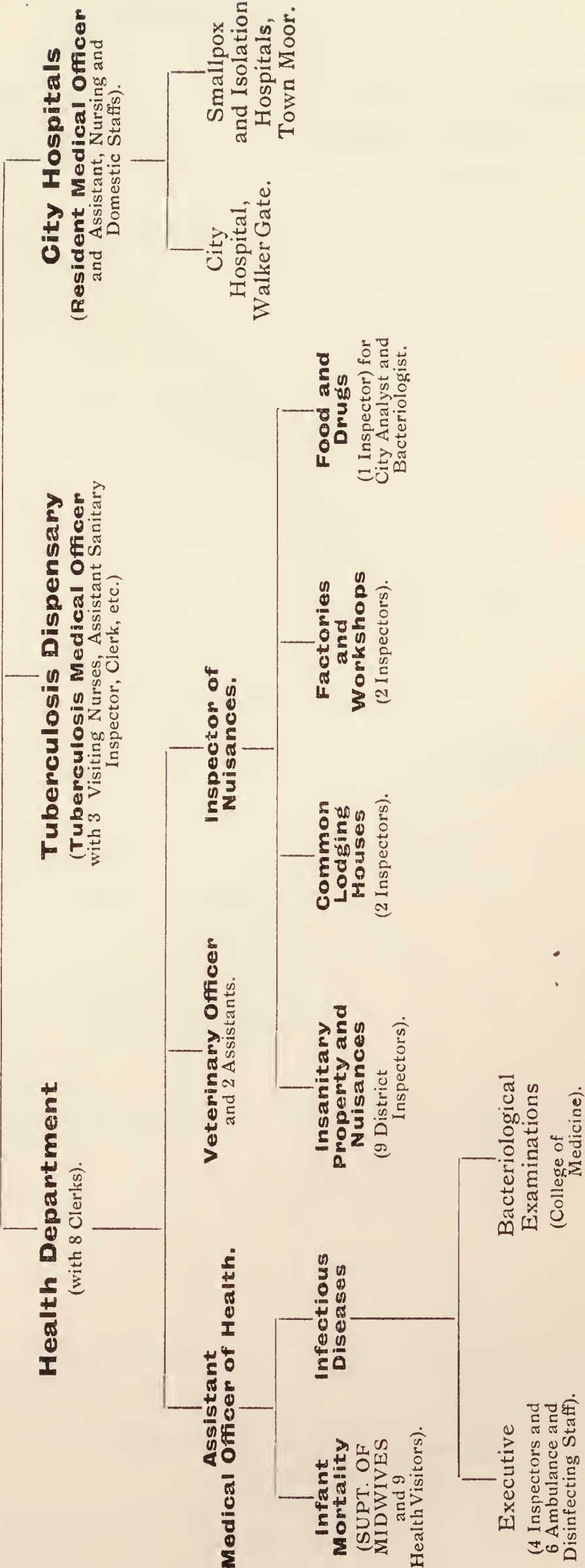
„ JOHN GRANTHAM. „ GEO. DIXON.

„ J. R. MASON, L.R.C.P. „ J. G. SMITH.

„ J. W. TELFORD.

TABLE SHEWING THE VARIOUS SECTIONS OF THE SANITARY COMMITTEE'S WORK WHICH IS UNDER THE DIRECT CHARGE OF THE MEDICAL OFFICER OF HEALTH.

Medical Officer of Health.



STAFF.

HAROLD KERR, M.D., D.P.H., Medical Officer of Health and Medical Superintendent of the City Hospitals for Infectious Diseases.

S. J. CLEGG, M.D., D.P.H., (Assistant Medical Officer of Health and Resident Medical Officer, City Hospitals for Infectious Diseases).

WM. HUDSPETH, Inspector of Nuisances, and Chief Sanitary Inspector.

CHRIS. RAIMES, Chief Assistant Inspector of Nuisances, and Assistant Workshops Inspector.

WM. CATTLIFF, Assistant Inspector under the Food and Drugs Acts.

ISAAC CLARK, Assistant Workshops Inspector.

E. W. SCOTT, JAS. McNICHOLL, JAS. HUNTER, GEO. HARDIE, W. F. BACON, JAS. McKENDRY, RICHARD REDPATH, ADAM FLOCKHART, L. W. JOHNSON, District Inspectors.

W. E. PERKINS, ARTHUR ROWE, Assistant Inspectors of Common Lodging Houses.

WM. BEAN, WM. GRAY, C. R. CRAIG, THOMAS HESLOP. Infectious Diseases Inspectors.

JAS. ROBSON, JAS. BRUCE, J. R. CRAGIE, J. W. ROBSON, T. W. WHELANS, Ambulance Drivers and Disinfectors.

WM. GILLENDER, WM. MILNE, GEO. CUTHBERTSON,* ALFD. HEDLEY,* ALEC. WALKER,* JOS. GILHESPY, WM. COCKBURN, Clerks in the Health Department.

(Those marked * hold the Sanitary Inspector's Certificate of the Royal Sanitary Institute).

THOS. PARKER, F.R.C.V.S., Veterinary Officer and Inspector of Provisions.

THOS. DODDS, J. M. ANDERSON, Assistant Inspectors of Provisions.

GEORGINA B. CAMERON, Chief Health Visitor and Superintendent of Midwives.

DOROTHY STRONG, K. M. MILBURN, M. I. F. ROWELL, M. A. NEALE, A. SPEAK, A. DESSON, M. LEVENE, A. G. M. MILLER, C. M. THEXTON, Health Visitors.

W. H. DICKINSON, M.B., CH.B., D.P.H., Tuberculosis Medical Officer.

MARGT. BROWN, M. L. HUTCHINSON, HELEN CURRY, Tuberculosis Visiting Nurses.

R. T. MORRISON, Assistant Inspector for Tuberculosis.

GEO. MAGNAY, Clerk for Tuberculosis.

L. L. FYFE, M.B., CH.B., D.P.H., Resident Medical Assistant, City Hospitals for Infectious Diseases.

W. S. MURRAY, M.B., B.S., Resident Medical Assistant, City Hospital.

H. E. COOK, Matron, City Hospitals for Infectious Diseases.

Sisters, Nurses, Servants.

HELENA N. HARRINGTON, Dispenser.

JAS. COCKBURN, Engineer.

HERBERT BLACKTIN, Lodge Keeper, City Hospital, Walker Gate.

Firemen; Window Cleaner.

JOS. W. and JANE STEPHENSON, JAS. and MARY GREGAN, Caretakers at Smallpox and Isolation Hospitals.

STAFF—*Continued.*

Of the foregoing, the following are now

SERVING WITH THE COLOURS.

S. J. CLEGG, Captain R.A.M.C., and Specialist Sanitary Officer.

L. L. FYFE, Captain, R.A.M.C.

JAS. HUNTER, Staff Sergeant, 50th Sanitary Section.

RICHARD REDPATH, Private, Army Pay Corps.

ADAM FLOCKHART, Company Sergt.-Major, 450th (Northumbrian) Field Company, Royal Engineers.

W. E. PERKINS, Corporal (Acting Sergeant), R.A.M.C., San. Sect.

WM. GRAY, Corporal (Acting Sergeant), R.A.M.C., 23rd San. Sect.

ARTHUR ROWE, Sergt., Pioneer Company, 18th Batt. Northd. Fusiliers, since awarded a Commission in 25th N.F.

THOS. HESLOP, Air Mechanic, 2nd class, R.N.A.S.

ALFRED HEDLEY, Sergt., R.A.M.C., 50th Sanitary Section.

A. M. WALKER, Private, R.A.M.C., 67th Divisional Sanitary Section (Invalided out August, 1916).

JOSEPH GILHESPY, Private, 18th Batt. North'd. Fusiliers (Pioneers).

JAMES BRUCE, Private, 3rd Batt. Northd. Fusiliers.

JOHN CRAGIE, Private, Army Veterinary Corps.

FRANK HARRINGTON, Private, 1st Battalion Coldstream Guards.

T. M. WHELANS, Driver, 200th Machine Gun Company.

J. W. ROBSON, Private, A.S.C. Remount Dépôt.

THOS. MOORE, Private, R.A.M.C.

MARY COULSON (Assistant Matron), J. H. MAIN (Home Sister), L. D. GODTSCHAILK (Night Supt.), and MARGARET NELSON (Ward Sister), all of the City Hospital, are serving as Territorial Association Sisters or Nurses in Military Hospitals.

On Munition Work—L. W. JOHNSON.

TEMPORARY STAFF, ineligible by age or otherwise for military service, have been engaged :—

Temporary Inspectors.—WM. DOVER, ALEX. KIRTON, T. S. MAGNAY, JOHN LIDDLE, J. D. DIXON.

Temporary Ambulance and Disinfecting Staff.—CHAS. GARRAWAY, JNO. TAYLOR, H. SANDERSON.

Temporary Clerks.—NORMAN DICKSON, EDITH LOONEY.

*To Councillor CHARLES T. STABLEFORTH,
J.P., Chairman of the Sanitary Committee
of the Corporation of Newcastle-upon-Tyne.*

SIR,

Herewith is presented my Report upon the health of the City during the year 1916. Again belated from unavoidable causes, it is arranged, as in recent years, with an introductory summary for general issue, the full Report being available only for those who specially desire to have it.

The past year has been on the whole a healthy one, and this we owe largely to the climatic conditions which, while not the most pleasant or cheerful, were unfavourable to germ growth and the spread of disease. All the *infectious diseases* showed unusually low incidence, with the exception of *measles*, which, however, was of extreme mildness, and caused less than one-third of the deaths due to it in either of the two preceding years. The special efforts of the Health Department, doubtless, were not without their effect also. *Circulatory and respiratory diseases* claimed a rather heavy toll, though scarcely so great as in 1915, and there was a rise in the number of deaths from *pulmonary consumption*, chiefly among young women between the ages of 15 and 35—the years of employment. These diseases are generally found to

be the natural consequence of cold and damp, bad housing conditions, stress and strain, or poverty and insufficient food, all of which conditions obtained here, with the exception of those in the last clause. Diseases of the *nervous system*, also dependent upon stress and strain, show a slight but steadily-increasing death rate. Deaths from *injuries and accidents* are the lowest for a number of years past. *Infantile mortality*, while still much higher than it ought to be and has been in some recent years, shows a substantial decline on the rates in 1914 and 1915, thanks chiefly to the light *diarrhœa* incidence, and to the low death rate from *measles* and other epidemic diseases.

The Registrar-General estimates the **Population** at the middle of the year as 272,259, or 5,448 less than in 1915. As the local evidence—inhabited houses, occupants per house, etc.—is against any diminution in the population, and as moreover all the mortality rates had already been calculated out on the basis of the 1915 population before the official estimate was received, for the purpose of this Report the former figure, 278,107, has been retained.

The Registrar-General explains that his estimate is founded upon the number of names in the National Register.

The number of **Marriages** in the City during the year was 2,620, as compared with 3,264 in 1915 and 2,717 in 1914.

The **Birth Rate** was 26·2 per 1,000 population, as against 27·8 in each of the two preceding years. This is the lowest yet reached. There were 261 fewer births in 1916 than in 1915.

The **Death Rate** (among civilians only) from all causes was 15·9 as compared with 17·2 per 1,000 population in 1915 and 1914. There were 344 fewer deaths than in 1915, but no count is taken of our losses in the army and navy, which must be considerable.

The **Infantile Mortality Rate** was equivalent to 123 deaths of infants under one year of age per 1,000 births, as compared with 133 in 1915, 137 in 1914, 122 in 1913, and 101 (the lowest recorded) in 1912. There were 199 fewer infantile deaths than in 1915, so that the saving effected among the babies was not equal to the loss through the lower birth rate.

The possibilities of life economy in the ages other than infancy are strictly limited, and if we are to continue to hold our own against the declining birth rate much greater effort will have to be put forth to safeguard the babies that are born. With the present severe drain upon our younger men from war casualties, the need for effort was never greater than now.

The chief causes of death in the first year of life are *prematurity and ante-natal influences*, and the mortality from these varies very little with the passing of the years and increasing success in other directions.

Respiratory diseases (which do not include whooping cough) vary somewhat in their severity, and generally kill about half as many babies as the foregoing. In the year under report the proportion was heavier. *Diseases of the digestive system*, which include *epidemic diarrhœa*, showed a welcome decline in mortality, as did that other occasional scourge of early childhood, *measles*.

The MOTHERS' AND BABIES' WELCOME SOCIETY continues to do excellent service through its seven centres, supplementing in a most valuable way the work of the Health Department.

The number of assistants to the CHIEF HEALTH VISITOR AND SUPERINTENDENT OF MIDWIVES (Miss G. B. Cameron) has been increased from four to nine, with the addition of a clerk. This has enabled a vast amount of additional visiting—of babies and of measles cases—to be undertaken, though not yet nearly as much as is needed. The Health Visitors continue to attend regularly at the Welcomes, where they meet the mothers and babies from their districts, and assist in the instructional work.

Infectious Diseases were altogether less prevalent than in any year since 1903, and of milder type. **Measles and Rubella**, compulsorily notifiable throughout the country for the first time, were certified in 3,192 cases, but there were only 67 deaths (0·24 per 1,000 population). Nearly all cases were visited forthwith by the Health Visitors to ensure that they were receiving proper care and attention. This has proved

a most valuable work, and, without doubt, contributed towards the low mortality.

There were only 728 cases of **Scarlet Fever**, with 24 deaths, and **Diphtheria** remained well below the average of recent years, with 272 cases and 28 deaths. **Whooping Cough** caused 78 deaths, which is about the average. **Infantile Diarrhœa** caused 107 deaths in children under two years, which is substantially less than in the three preceding years.

There were only 76 cases of **Enteric Fever** with 10 deaths, and there can be little question that we largely owe our comparative freedom from this once constant scourge of war-time to the miraculous success of preventive inoculation of the troops. Only three of the military cases sent to the City Hospital as enteric fever proved to be actually suffering from that disease, out of the whole great area of the north-east counties, and of these patients two had been inoculated previously. These two recovered, but the uninoculated man, a recruit, died. All the nurses at the City Hospital are protected by inoculation.

There was no occurrence of anything suggestive of **Food-Poisoning**.

Typhus made no appearance in the City in 1916.

Smallpox also remained absent. Cases occurred in South Shields and in County Durham, and among the contacts with the former were some munition workers at Scotswood. These were promptly excluded from the

factory and vaccinated forthwith, and were kept under close observation until it was certain that they had not acquired the infection. For this most fortunate escape we have to be devoutly thankful, since owing to the steadily increasing neglect of infantile *vaccination*, which now happens in over 21 per cent. of the babies in Newcastle—and far more in the surrounding districts—the disease once established would be well-nigh impossible to control, and young children are by far its most susceptible victims. It is extraordinary how popular is the “anti” attitude, especially when it saves trouble at the moment.

As a precautionary measure **Chickenpox** was made notifiable from July 4th to October 28th, and 280 cases were reported.

Five cases of **Acute Poliomyelitis** occurred, none of whom died, and 43 cases of **Cerebro-Spinal Fever**, with 12 deaths.

Anthrax infection was found in a large batch of cheap shaving brushes, part of a big consignment from Japan. Out of 7,200, 6,701 were seized and destroyed, and it was endeavoured, by wide advertisement, to secure the destruction of those that had been sold. No case of human infection was heard of.

Hospitals for Infectious Diseases.—1,380 fever patients (87 per cent. of the notified cases admissible), together with 146 cases of pulmonary

consumption, were isolated at the *City Hospital, Walker Gate*. The former figure includes a number of cases of other diseases from military camps and billets over the greater part of the two North-eastern counties. In all 395 naval and military patients were received. The fever case mortality for the Hospital was 6 per cent.

The *Smallpox Hospital* was only in use until the middle of February as a relief to the scarlet fever wards at Walker Gate, and except for the accommodation of two suspected cases of smallpox and four contacts in April and May has remained closed since.

The *Disinfecting Stations* at Walker Gate and on the Moor dealt with approximately 56,000 articles from the City, from military units within a wide radius of Newcastle, and from the Hospitals themselves. Special credit is due for the way in which this work has been carried on in spite of exceptional difficulties arising from the calling up of staff for military service.

The **Tuberculosis** scheme has been kept going in spite of the continued shortage of medical staff. Although home-visiting of patients is practically entirely relegated to the Nurses, the TUBERCULOSIS MEDICAL OFFICER (Dr. W. H. Dickinson) reports a steady increase in the number of consultations with him at the Dispensary, viz. 7,758 as against 6,473 in 1915.

There were 987 new cases notified as compared with 964 in 1915 and 958 in 1914, and there were 557 deaths as compared with 542 and 529 in the two preced-

ing years. No less than 19 per cent. of these cases were first discovered by the Tuberculosis Medical Officer among the "contacts" of known patients. There were 850 cases on the Dispensary register, and of these 306 were insured persons, 438 were dependents of insured persons, and 106 were uninsured.

A grave feature is the sudden considerable increase in the number of deaths from consumption among women aged 15 to 35, the ages at which they are now flocking into the factories or other employments where previously comparatively few went out to work.

The filthy and dangerous habit of promiscuous spitting shows little sign of improvement.

The thirty beds at *Barrasford Sanatorium* for adults, and the thirty beds for children at *Stannington Sanatorium*, were kept occupied throughout the year. Of 588 patients treated in Corporation beds at Barrasford since the commencement of contract in 1908, at the end of 1916 there were 26 still in the institution, 157 well, working or fit to work, 73 improved or fit for light work, 32 unimproved or relapsed, 208 dead, and 89 lost sight of. Of 73 Corporation patients who left Stannington in 1916, 56 were much improved, 13 improved, and 4 showed no improvement. 115 advanced cases were discharged from the *Sanatorium Pavilions, Walker Gate*, and 8 of these were fit for work, 49 were improved, 32 were without improvement, 26 died in hospital, and 17 have died at home. The great value of this institu-

tion lies in the prevention of the infection of other members of a household where the home conditions are not such as to permit of sufficient precautions being taken.

It is satisfactory to find that in spite of the heavy depletion of the doctors in the City, cases of consumption continue to come ever earlier under treatment, though not yet early enough for more than—in many cases—mere temporary postponement of the end. The number of deaths of unnotified cases in 1916 was less than half what it was in 1913, and the average duration of life after notification for the remainder increased in the same period from $6\frac{1}{2}$ to $12\frac{1}{2}$ months.

There is little doubt that had it not been for the adverse conditions directly resulting from the war—physical and mental overstrain, bad housing, and in some cases poverty—we should by this time have been able to show considerable progress in the effort to stamp out consumption.

A comprehensive scheme for the free diagnosis and treatment of, and education against **Venereal Diseases**, was agreed upon towards the end of the year between the County and County Borough Authorities of Northumberland and Durham and the Bacteriological Laboratory of the University of Durham College of Medicine and the Managers of the Royal Victoria Infirmary, the arrangement to come into working order on the 1st of January, 1917.

Food and Provisions.—Bovine Tuberculosis.—195 samples of milk were examined for the presence of tubercle bacilli, which were found in 17, or 8·7 per cent., of them.

Owing to the continued suspension of the Milk and Dairies (Consolidation) Act, 1915, the chief value of which would be the fact of its application to the areas from which the milk supply is drawn, it is still most difficult to deal with contaminated supplies from outside the City, and the result very uncertain. This is instanced by the fact that in three of the cases in which diseased milk was found the supply was diverted from Newcastle before it was known whether the measures demanded had been carried out. Another diseased milk could not be traced at all owing to the loose way in which farmers often use one another's vessels. In still another case, the contaminated sample was from the mixed milk of ten farms, a minute inspection of each of which had to be carried out before the one diseased cow that presumably caused the trouble was discovered. In the previous year it may be remembered that there was a tuberculous sample obtained from the mixed milk of no less than forty farms, situated in Scotland, and an examination carried out at each of these farms entirely failed to detect the infecting animal. Many of the difficulties and obstacles met with could be prevented by the issue of Regulations, as provided for under the Act.

There are 44 cowsheds with 536 cows, and 106 slaughter-houses scattered about the City, and efficient supervision of all of these is an impossibility which only the provision of a public abattoir will get rid of. It is encouraging to find this long-advocated but sedulously side-tracked reform now being seriously discussed. Meanwhile the slaughtering accommodation is becoming more and more congested, and less and less satisfactory.

The VETERINARY INSPECTOR (Mr. Thomas Parker, F.R.C.V.S.) reports the condemnation on account of tuberculosis of $107\frac{1}{2}$ animal carcasses, an increase of $7\frac{1}{2}$ over the previous year.

Other Unsound Food.—81 animal carcasses, in addition to the above, were condemned as being unfit for human consumption.

492 vessels brought foodstuffs from abroad to Newcastle Quayside, a considerable increase upon the pre-war numbers (in 1913 there were only 307). The cargoes were inspected carefully, and such portions as proved to be unsound were seized and destroyed, or ordered to be re-exported.

The Veterinary Officer continued to render considerable assistance to the military authorities in the inspection of their food supplies.

There were two successful prosecutions against persons exposing for sale diseased meat.

Food and Drugs Adulteration Acts.—The INSPECTOR UNDER THE FOOD AND DRUGS ACTS (Mr. Wm. Hudspeth) reports the taking of 1,279 samples for analysis, including 852 of milk.

Of the latter 485 were rough-tested in the Health Department, and appeared to be genuine, and of the remaining 367 the Public Analyst found 88 to be below the minimal limits fixed by the Sale of Milk Regulations, 1901. Two samples were found to be artificially coloured, and none contained preservatives.

Of the 427 samples of food and drugs other than milk, 17 were found to be not genuine.

35 cases were taken to court, and a conviction was obtained in 26 of them, with fines aggregating £47 5s. 0d.; cautions were issued in respect of 39; and no action was taken, for various reasons, in 31.

There were 10 offences other than adulteration, and five convictions out of six prosecutions, the remaining case being dismissed on payment of costs. Cautions were sent in respect of four.

The samples taken under the Food and Drugs Acts represented a proportion of 4·6 per 1,000 population, in addition to 195 samples of milk for examination by the Bacteriologist for presence of tubercle bacilli (mentioned above), and 200 for evidence of excremental pollution, which was found to an undesirable degree in 83 (or 41·5 per cent.). In 196 samples of water examined for

evidence of excremental pollution, 22 were classified by the Bacteriologist as satisfactory, 80 as doubtful, 67 as unsatisfactory, and 27 as bad.

In 1914 10·2 per cent. of the milk samples were certified "not genuine," in 1915 9·3 per cent., and in 1916 10·3 per cent. Tubercle bacilli were found in 6·7 per cent. in 1914, 5·8 per cent. in 1915, and 8·7 per cent. in 1916. Evidence of excessive excremental pollution was found in 23·2 per cent. in 1914, 35·0 per cent. in 1915, and 41·5 per cent. in 1916, thus indicating steady deterioration in the precautions for safeguarding the cleanliness of the milk, by careful methods at the farms, and skilful handling in transit and delivery.

There are 737 small general shops selling milk, and the unsuitability of these for the purpose constitutes a serious risk to the consumers, who are mainly children. In three the conditions were so bad that the sale of milk was stopped—by persuasion. The absence in very many of the poorer homes of proper storage accommodation for food is another important factor.

Milk is the commonest and readiest vehicle for transmission of infection, and too great care cannot be exercised in guarding it against contamination and pollution.

The margarine warehouses, bakehouses, restaurant kitchens, fried fish shops, and ice-creameries were kept under supervision, and their cleanliness and cleansing insisted upon.

The House and the Workplace.—

Nuisance Abatement.—The INSPECTOR OF NUISANCES (Mr. William Hudspeth) reports much difficulty in getting improvements carried out and defects remedied, owing to shortage of labour and materials. The systematic house-to-house inspection under the Housing and Town Planning, etc., Act has been discontinued since early in 1915 because of the impossibility of getting all the vast number of minor defects so discovered attended to. Nevertheless, 8,827 notices were served, and magisterial proceedings were only necessary in 19 instances.

All things considered, the cleansing and scavenging services (under the City Engineer) have been well carried on, and at any rate the health of the community has not suffered to any perceptible extent through the disabilities and difficulties under which the work has been performed. One good feature has been the increased resort to street-flushing, which is by far and away the most satisfactory method of cleansing streets and back lanes and courts.

If householders could only be persuaded to burn all their combustible domestic refuse, the difficulty of disposal would be greatly lessened.

Closet conversions have fallen considerably once more, and in 1916 only 104 were obtained, as against a pre-war rate of about 700. Almost one-tenth (5,343) of the closets of the City are still on the conservancy system, mostly in the Byker and Walker districts.

Atmospheric Pollution, as measured at the observation station near the Sallyport Tower in City Road, amounted to a deposit, in that part of the town, at the rate of 21 cwt. of solid impurities per acre per annum, or 694 tons per square mile.

Housing is a subject of the gravest anxiety to all who are concerned for the well-being and healthy development of the people. So great is the scarcity of houses that overcrowding may fairly be said now to have become habitual. A census of 991 tenement dwellings, mostly of one and two roomed holdings, in different but typical parts of the City, was carried out by the Inspector of Nuisances during the spring. While comparatively little statutory overcrowding was found—under $1\frac{1}{2}$ per cent. in fact—the average number of occupants per room was 2.12.

On this showing, to relieve the congestion in the *tenements* of the City only, so that the occupants shall average not more than two persons per room, about 1,150 new rooms are required, or, at two rooms per holding, nearly 600 dwellings. The tenement dwellers represent under 15 per cent. of the total population, and with the overcrowding that undoubtedly exists in the flats and self-contained houses, it is evident that the houses required are likely to run into very big figures. Further steps are being taken to ascertain the state of affairs more precisely.

At the end of the year there were only 118 unoccupied houses, of which 52 were self-contained, 4 were flats, and 3 house and shop combined, while 59 of them were believed to be unfit for habitation. There is not an empty house in most of the working-class wards. Substantial sums are offered as bonuses for possession of even a small flat, occasionally as much as £10! The now established habit of congestion is bound to leave its mark on the health and physique of the people, as is readily demonstrable in the high mortality rates from all causes, from tuberculosis, and among the infants, notably in the more densely crowded areas and those having the most insanitary houses.

Thus the general death-rate in St. John's Ward was 21·9 per 1,000 inhabitants, while in Dene Ward it was 9·9.

In St. Nicholas' 3·28 persons out of every thousand inhabitants died of consumption of the lungs, but in St. Thomas' the rate was only 0·55. 28 per cent. of the population of the City live in one and two-roomed dwellings, but among these occurred 35 per cent. of the deaths from consumption.

The infantile mortality rate in St. John's Ward was 165 deaths per 1,000 births (St. John's has nearly the highest birth-rate in the City, 31·7 per 1,000 population), whereas in Jesmond it was only 50. The deaths in 1916 among infants under the observation of the

health visitors were at the rate of 196 per 1,000 births in the single-room dwellings, 147 in the two-room, and 113 in the three-room.

House closure for irremediable defects is at a standstill, and the number that will require drastic treatment when attention can at length be given to them is steadily growing. The "black list" of houses awaiting condemnation is not so very big, but that is only because the systematic inspections have been suspended. One family only has been unhoused, and new accommodation has been provided for 186 families, 167 of them in the Corporation schemes at Sallyport Crescent and St. Lawrence Square. The Ministry of Munitions has erected 410 semi-permanent houses at the extreme west end of the City. The severe winter tested these thoroughly, and though they are by no means perfect, on the whole they have proved very satisfactory.

A suggestion was made to the Estate and Property Committee to re-open for inhabitation houses in the Ouseburn Valley belonging to the Corporation, that had long fallen into disuse owing to their structural defects and unwholesome site. That Committee referred the matter to the Sanitary Committee, and on the strong representations of the latter decided to take no further steps, but to demolish the property altogether.

The Medical Officer of Health was asked to advise the Housing Committee as to a suitable standard for the

regulation of the number of occupants in Corporation houses. The reply was as follows:—

NUMBER OF OCCUPANTS IN CORPORATION HOUSES.

“ It is unnecessary to refer you to the standard of cubic space required by the tenement by-laws, which, of course, does not apply in the case of self-contained dwellings.

I think a fair working standard would be two adults per room, two children not exceeding ten years of age to count as one adult (this is the standard of age generally adopted in Model By-Laws, and appears to me a good one). Generally speaking, the space in the rooms under discussion varies from 1,000 to 1,400 cubic feet, by no means a generous allowance for two persons. Where the room is larger, *e.g.*, in the bedrooms of the Gap houses in Walker Road, an extra child under ten years might be permitted.

I do not agree with the recommendation of 21st June, 1909, that two adults and two children be allowed to each single room tenement. I am strongly of opinion that under no circumstances should the standard I suggest above, *i.e.*, two adults or one adult and two children under ten, be exceeded; indeed it is undesirable that children should be housed in single room holdings at all. Such accommodation should be restricted to old folk.

I fear that the enforcement of this standard at the present time is hardly practicable, but even so I think it should be adopted in principle forthwith, and rigidly adhered to after the war, when the pressure on existing housing accommodation may be somewhat relaxed.”

In view of the great difficulties resulting from the present conditions, the Committee, while approving generally of the principles recommended, felt that it would be impossible to enforce them at the present time, and accordingly decided to postpone their final consideration of the recommendations until a more favourable opportunity.

The common lodging-houses have been under constant supervision, and have been satisfactorily conducted. They have not been so fully occupied as in the previous year, owing to the calling up of more men for military service, and the accommodation provided has always been in excess of the demand.

Factories and Workshops, Offices, and Schools.—4,961 inspections of factories and workshops have been made, and 309 notices to remedy defects were served. The homes of outworkers were also kept under observation.

In connection with the substitution of women for men in works and offices, special attention has been paid to the adequacy of the sanitary accommodation provided, its privacy, and so forth. Enquiry circulars were sent to all employers—several thousand in all—and where the reply did not seem satisfactory a visit of inspection was paid.

Nine samples of rag flock were purchased and submitted to the Public Analyst, three being found not to conform to the legal standard of cleanliness. By order of the Sanitary Committee the vendor was cautioned in each case.

117 inspections were made at Council Schools, and 16 defects were noted and reported to the Director of Education, who had them remedied.

Collaboration with the Military Authorities.—The close co-operation and pleasant relations between the Health Department and the Military Authorities have continued throughout the year.

The services rendered have become considerably less onerous with the passage of time and the improved training of troops. They include routine inspection of billets and quarters, treatment of infectious disease, (not limited to the City area) and disinfection ; supervision of food supplies, and the conditions of manufacture and preparation ; and generally the facilitating of arrangements for the health and comfort of troops.

Billet inspection entailed 2,389 visits ; 395 cases of infectious disease (of whom 20 died) were treated at the City Hospital, Walker Gate ; and 14,857 articles were disinfected for various reasons.

Staff.—18 men, including three doctors, are now absent on military service, and one on special technical work. 12 temporary substitutes, men and women, have been engaged. The chief shortage is felt in regard to the medical staff, who are unreplaceable. Most fortunately the low rate of sickness that characterised the year has greatly mitigated the effect of the extreme shortage of medical men, both in the municipal service and among the community generally.

All members of the staff have given of their best to ensure the maintenance of the high standards that the Department has always aimed at, and to them I make

my acknowledgment for the large amount of good work accomplished, often under difficult circumstances.

In conclusion, I beg to thank you, Sir, and the members of the Sanitary Committee, for your never-failing confidence and support, which mean so much to the efficiency of the Health Department and the contentment of its staff.

I have the honour to be, Sir,

Your obedient servant,

A handwritten signature in dark ink, appearing to read 'H. Kerr'. The signature is written in a cursive style with a long, sweeping horizontal stroke at the beginning and a vertical stroke at the end.

M.D., D.P.H.,

Medical Officer of Health.

Health Department,

Town Hall,

Newcastle-upon-Tyne,

19th September, 1917.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

Health Report, 1916.

I. GENERAL.

MORTALITY TABLES, SOCIAL CONDITIONS,
CLIMATOLOGY, WATER SUPPLY, DISPOSAL OF REFUSE,
ADOPTED AND LOCAL ACTS.

POPULATION, BIRTH RATE, AND SPECIAL MORTALITY RATES DURING THE PERIOD OF THE NOTIFICATION OF INFECTIOUS DISEASES.

Prior to 1911 figures uncorrected for cases belonging to other Districts

† Including 133 Rubella.

GENERAL STATISTICS.

POPULATION.—As estimated by the Registrar General at the middle of the year 1915—(*Revised*) **278,107.**

RETURN SHEWING THE ESTIMATED POPULATION OF THE DIFFERENT
WARDS IN THE CITY, ACREAGE, POPULATION PER ACRE, ETC.

Ward.	Population.	Gross Area in Acres.	Less for Open Spaces, in Acres.	Nett Area in Acres.	Population Per Acre, gross.	Nett
St. Nicholas' ...	3,656	127	1	126	29	29
St. Thomas' ...	14,449	1,636	1,130	506	9	29
St. John's ...	15,725	169	1	168	93	94
Stephenson ...	19,205	215	...	215	89	89
Armstrong ...	16,003	178	31	147	90	109
Elswick ...	12,955	253	17	236	51	55
Westgate ...	15,635	90	1	89	174	176
Arthur's Hill ...	11,704	142	6	136	82	86
Benwell ...	18,010	550	20	530	33	34
Fenham ...	11,301	1,189	...	1,189	10	10
All Saints' ...	18,130	176	2	174	103	104
St. Andrew's ...	12,783	173	3	170	74	75
Jesmond ...	11,317	441	35	406	26	28
Dene ...	12,478	818	37	781	15	16
Heaton ...	15,877	225	76	149	70	106
Byker ...	17,904	140	...	140	128	128
St. Lawrence ...	18,343	181	3	178	101	103
St. Anthony's ...	16,165	601	...	601	27	27
Walker ...	16,467	1,149	37	1,112	14	15
CITY ...	278,107	8,453	1,400	7,053	33	39

INHABITED HOUSES.—**51,641**, shewing (each flat and each tenement holding being counted as one house) an average of 5·38 persons per dwelling.

RATEABLE VALUE.—**£1,757,950.** A penny rate produced £6,879.

SOCIAL CONDITIONS.—The principal **Trades and Occupations** are of a healthy nature, being general engineering and machine making; conveyance of men, goods, and messages; building and works of construction, *e.g.*, ship building; and connected with ships and boats, sea-faring and harbour work; food, tobacco, drink, and lodging; coal and shale mines; and commercial or business occupations.

The amount of **Poor Law Relief** granted during the year ended 30th September, 1916, was £27,805 for out-door relief, and £27,264 for indoor maintenance, making a total of **£55,069**, as compared with **£53,524** in the previous year.

The City contains many **Hospitals** and other medical charities, but as wide surrounding districts are also served by them, figures as to patients treated are not of local value.

MARRIAGES.—2,620 Marriages took place during the year, as compared with 3,264 in 1915 and 2,717 in 1914.

BIRTHS.—7,284, equivalent to a rate of **26·2** per 1,000 population, the lowest yet recorded.

DEATHS (all causes)—4,875, equivalent to an uncorrected rate of 17·5 per 1,000, and, after deduction of the deaths of 680 non-citizens, and addition of 232 Newcastle residents who died elsewhere, to a corrected rate of 15·9 per 1,000 population. In 1915 the death-rate was 17·2.

13 deaths were *uncertified*. The following are the particulars:—

UNCERTIFIED DEATHS, 1916.

Premature Birth—4 in St. John's, ages 10, 15, and 30 minutes, and 17 hours; 1 in Benwell, 2 hours; 1 in Westgate, 4 days; and 1 in St. Anthony's, 1 hour	7
Convulsions—1 in All Saints, 2 hours	1
Bronchitis—1 in Byker, aged 49 years	1
Heart Diseases—1 in Heaton, aged 72 years	1
Old Age—1 in Byker 84 years; and 1 in Elswick, 82 years ...	2
Rickets—1 in Walker, aged 1 year	1
	<hr/>
	13

Twenty-one **Orders for Burial** (Newcastle-upon-Tyne Improvement Act, 1882, Sec. 47) were given, 10 being in respect of bodies lying in inhabited rooms, and 11 being cases from hospitals.

INFANTILE MORTALITY.—899 Infants died before completing the first year of life, representing a rate of **123** deaths per 1,000 births.

ZYMOTIC DEATH RATE.—There were 314 deaths from the “Chief Zymotic Diseases” [Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever (Typhus, Simple Continued, and Enteric) and Diarrhoea] which is equivalent to 1.1 deaths per 1,000 population, the same as the rate in 1903, which is the lowest on record.

TUBERCULOSIS.—557 persons died from various forms of Tuberculosis, 417 being from Pulmonary, and 140 from Other Forms. The equivalent death rates are *All Forms* **2.00**, *Pulmonary* **1.50**, and *Other Forms than Pulmonary* **0.50**, per 1,000 population.

For comparison of death rates with previous years see table page 32A.

For particulars of deaths, as to causes, age, etc., see table page 40B.

CLIMATOLOGY.—The Newcastle district is notable for its grey skies and comparative lack of sunshine. To some extent this is the result of obscuration by smoke and suspended matter, but not by any means entirely so.

At the Observation Station at the City Hospital, Walker-Gate, the mean barometer reading was 29.38 in.

The mean maximum temperature was 55.62° F. and the mean minimum 41.31° F.

Measureable rain fell on 187 days, amounting in all to 31.05 inches, the highest recorded since 1912.

The prevailing winds were westerly, frequency of direction being noted as follows:—

W., N.W., or S.W. on 205 days.

E., N.E., or S.E. on 94 days.

S. on 36 days.

N. on 31 days.

WATER SUPPLY.—The City is served by the Newcastle and Gateshead Water Company with a plentiful supply of pure upland surface water, collected from large catchment areas at Catcleugh, close to the Cheviots, and in lower Northumberland.

It is stored in large impounding reservoirs at Catcleugh, Hallington, and Whittle Dene, and passes through sand filters at Whittle Dene and Throckley.

In the vast majority of cases the household taps are served directly from the mains, without intervening cisterns.

A separate trade supply is piped to some of the great riverside works from a point above the filters.

The Bacteriological reports upon the water samples are given on page 115.

SEWERAGE.—There are 277 miles and 760 yards of sewers discharging at various points along the seven miles of river frontage directly into the Tyne, which is tidal.

CLEANSING AND SCAVENGING.—Owing to shortage of labour, etc., due to the War, there is now no regular system of street cleansing. A large increase has been made in the amount of street flushing however, four gangs being regularly employed on this work.

There are 51,651 water closets and 5,343 conservancy system closets in the city. Conversion of the latter was proceeding steadily up to the outbreak of war, at the rate of 600 to 700 per annum. All the schools are served by the water-carriage system.

The scavenging, which includes the removal of dry house refuse, the contents of privy pans, privies, and ashpits is fairly efficiently carried out under circumstances of considerable difficulty.

There are 52,174 dry ashtubs and galvanised iron bins in the City.

ADOPTIVE AND LOCAL ACTS IN FORCE.

Adopted Acts—Infectious Disease (Prevention) Act, 1890.
Section 4.

Public Health Acts Amendment Act, 1890.

Part III.—Whole of.

Part IV.—Whole of.

Public Health Acts Amendment Act, 1907.

Part II.—Sections 20, 22, 23, 26, 27, 28, 29, 30, 31,
and 33.

Part III.—Sections 34, 35, 36, 37, 38, 43, 45, 48, 49,
50, and 51.

Part IV.—Sections 52, 53, 56, 58, 59, 61, 62, 63, 64
65, and 68.

Part X.—Whole of.

Local Acts.—Newcastle-upon-Tyne Improvement Act, 1837.

Do.	do.	1846.
Do.	do.	1853.
Do.	do.	1865.
Do.	do.	1870.
Do.	do.	1882.
Do.	do.	1892.

Newcastle-upon-Tyne Tramways and Improvement
Act 1899.

Newcastle-upon-Tyne Corporation Act ... 1911.

MORTALITY RATES, YEAR 1916.

COMPARISON WITH OTHER DISTRICTS.

DISTRICT.	Birth Rate.	General Death Rate.	Infantile Mortality Rate.	Death Rate per 1000 from Enteric Fever, Smallpox, Scarlet Fever, Measles, Whooping Cough, and Diphtheria	Tubercul- osis (all causes) Death Rate
England and Wales	21·6	14·0	91	0·52	—
96 Great Towns (includ. London)	23·0	14·4	99	0·64	—
NEWCASTLE-UPON-TYNE	26·2	15·9	123	0·74	2·00
Hull	28·4	15·6	115	0·62	1·86
Leeds	21·4	15·3	126	0·58	2·16
Bradford	17·5	14·9	119	0·42	1·64
Sheffield	25·3	15·0	109	0·86	1·7
Manchester	22·7	15·4	109	0·87	2·10
Salford	22·6	14·7	113	0·70	2·1
Liverpool	28·0	18·6	116	0·95	2·1
Nottingham	21·3	18·0	115	0·45	1·73
Leicester	20·6	13·4	105	0·84	1·65
Stoke-on-Trent	25·4	16·1	126	1·25	2·04
Birmingham	23·8	13·8	103	0·69	1·48
Cardiff	29·3	13·2	88	0·54	1·86
Bristol	20·8	13·5	96	0·52	1·55
Portsmouth	25·6	14·2	80	0·62	1·38
London	20·7	14·3	89	0·56	—
Gateshead	28·7	17·7	128	0·90	—
South Shields	27·9	16·6	120	0·44	2·29
Tynemouth	27·5	16·2	119	0·84	1·70
Sunderland	27·9	17·8	118	0·66	2·05
Middlesbrough	30·2	17·5	120	0·94	1·6
*County of Northumberland ...	21·9	13·7	101	0·57	1·62
*County of Durham	25·2	13·2	115	1·52	1·39

* Administrative County.

TABLE I. OF LOCAL GOVERNMENT BOARD.

Vital Statistics of Whole District during 1916 and previous Years.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncor- rected Number	Nett.		Number	Rate.	of Non- resi- dents regist- ered in the District	of Resi- dents not reg- istered in the District	Under 1 Year of Age.		At all Ages.	
			Number	Rate.					Number	Rate per 1,000 Nett Births.	Number	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1906	257,113	8,210			4,831	18·8						
1907	259,082	8,093			4,594	17·7						
1908	261,065	8,382			4,801	18·4						
1909	263,064	7,682			4,459	16·9						
1910	265,077	7,543			4,252	16·0						
1911	267,261	7,089	7,082	26·5	4,667	17·5	448	165	973	137	4,384	16·4
1912	269,193	7,219	7,194	26·7	4,221	15·7	529	146	727	101	3,838	14·5
1913	271,295	7,480	7,460	27·5	4,611	17·0	560	141	908	122	4,192	15·5
1914	271,523	7,564	7,538	27·8	5,069	18·7	546	138	1,029	137	4,660	17·2
1915	278,107	7,575	7,545	27·8†	5,257	18·9	693	207	1,007	133	4,771*	17·2*
1916	278,107	7,332	7,284	26·2	4,875	17·5	680	232	899	123	4,427*	15·9*

Area of District in acres (exclusive of area covered by water) 8,452. Total population at all ages at census 1911, 266,603.
† In accordance with the instructions of the Supt. of Statistics, General Register Office, Somerset House, this rate is calculated on the population for 1914. * Civilians only.

Corrected Death Rates in different Wards, 1916.

St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	City.
14·8	12·0*	21·9	18·0	13·9	17·7	14·7	16·5*	16·2	14·5	19·7	20·4	10·3	9·9	14·5	18·7	14·7	14·9	14·9*	15·9

* All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

TABLE II. OF LOCAL GOVERNMENT BOARD.

(See under Infectious Diseases, page 59.)

TABLE IV. OF LOCAL GOVERNMENT BOARD.

(See under Infantile Mortality, page 44a.)

YEAR, 1916.

Return of deaths from "ALL CAUSES" at age periods in the different Wards (*uncorrected*) together with the *Nett Deaths*.

WARD.	UNDER 1 YEAR.					1 AND UNDER 2 YEARS.					2 AND UNDER 5 YEARS.					5 AND UNDER 15 YEARS.					15 AND UNDER 25 YEARS.					25 AND UNDER 45 YEARS.					45 AND UNDER 65 YEARS.					65 YEARS AND UPWARDS.					TOTAL.					NETT DEATHS.
	1st qr.	2nd qr.	3rd qr.	4th qr.	Total.	1st qr.	2nd qr.	3rd qr.	4th qr.	Total.	1st qr.	2nd qr.	3rd qr.	4th qr.	Total.	1st qr.	2nd qr.	3rd qr.	4th qr.	Total.	1st qr.	2nd qr.	3rd qr.	4th qr.	Total.	1st qr.	2nd qr.	3rd qr.	4th qr.	Total.	1st qr.	2nd qr.	3rd qr.	4th qr.	Total.											
St. Nicholas' ...	1	2	1	...	4	2	1	3	1	1	2	...	2	2	...	4	...	4	4	3	6	2	1	12	5	8	2	2	17	2	6	3	1	12	14	30	10	4	58	54
St. Thomas'* ...	14	12	9	12	47	8	11	4	9	32	7	8	10	6	31	13	13	14	11	51	27	32	24	23	106	41	51	43	52	187	46	48	45	42	181	28	22	20	20	90	184	197	169	175	725	174
St. John's ...	17	21	23	20	81	4	7	9	7	27	6	6	2	4	18	6	5	1	3	15	4	3	3	...	10	9	6	11	12	38	31	16	16	18	81	17	16	12	18	63	94	80	77	82	333	345
Stephenson ...	17	11	23	21	72	11	8	7	6	32	6	4	...	4	14	2	4	4	1	11	4	5	2	2	13	11	10	5	15	41	24	30	14	29	97	20	10	14	18	62	95	82	69	96	342	345
Armstrong ...	13	15	8	14	50	3	2	1	5	11	3	3	4	6	16	2	1	5	3	11	2	2	4	3	11	5	13	10	6	34	7	12	7	13	39	12	6	7	20	45	47	54	46	70	217	222
Elswick ...	10	8	3	11	32	...	1	1	1	3	1	1	1	...	3	...	1	1	1	3	3	2	2	5	12	7	7	7	4	25	18	12	14	10	54	25	32	17	25	99	64	64	46	57	231	229
Westgate ...	16	14	7	10	47	3	8	2	4	17	4	5	1	2	12	2	3	3	5	13	...	7	4	6	17	5	5	6	7	23	16	10	4	11	41	10	14	11	13	48	56	66	38	58	218	230
Arthur's Hill† ...	3	6	3	5	17	1	...	2	...	3	1	...	1	1	1	2	1	5	3	1	...	2	6	11	2	7	4	24	19	14	4	8	45	21	19	5	13	58	59	43	24	33	159	193
Benwell ...	21	13	17	17	68	5	5	2	6	18	...	4	8	7	19	5	1	5	3	14	2	5	3	7	17	7	12	13	9	41	14	20	7	11	52	20	10	10	14	54	74	71	65	74	284	291
Fenham ...	9	12	10	12	43	7	3	3	1	14	1	1	1	1	4	1	1	1	2	5	4	5	2	2	13	5	2	5	4	16	7	8	6	10	31	5	9	5	13	32	39	41	33	45	158	164
All Saints' ...	24	20	10	23	77	6	6	8	2	22	4	6	2	5	17	3	6	1	3	13	3	3	4	2	12	18	12	11	9	50	24	29	16	28	97	15	20	13	24	72	97	102	65	96	360	358
St. Andrew's ...	14	17	10	7	48	7	5	4	6	22	4	3	1	3	11	4	5	3	3	15	3	3	...	2	8	10	10	10	6	36	12	18	14	15	59	17	20	12	28	77	71	81	54	70	276	261
Jesmond... ..	2	1	3	4	10	1	2	...	3	1	3	4	1	1	2	3	5	5	3	16	7	8	6	7	28	13	16	14	6	49	26	31	31	24	112	116
Dene ...	5	8	3	3	19	1	1	2	2	1	...	1	4	3	2	5	1	3	3	...	7	3	4	6	4	17	5	8	3	7	23	13	10	7	10	40	33	37	22	25	117	124
Heaton ...	11	8	8	9	36	1	5	...	2	8	1	1	2	...	4	3	4	1	3	11	2	4	6	4	16	7	12	4	5	28	9	14	11	9	43	26	12	16	15	69	60	60	48	47	215	230
Byker ...	21	16	16	26	79	6	8	8	4	26	6	6	2	3	17	3	8	2	2	15	2	4	1	3	10	9	9	12	12	42	14	15	12	20	61	13	16	15	29	73	74	82	68	99	323	335
St. Lawrence ...	20	14	16	18	68	7	9	2	6	24	5	3	4	3	15	4	6	1	2	13	3	3	3	3	12	7	14	4	8	33	17	17	7	12	53	9	7	11	15	42	72	73	48	67	260	270
St. Anthony's ...	18	19	10	16	63	4	8	8	6	26	5	3	3	2	13	6	5	6	2	19	3	5	2	3	13	4	7	7	12	30	7	11	5	7	30	18	6	4	12	40	65	64	45	60	234	241
Walker ‡... ..	21	12	15	11	59	9	2	5	3	19	3	3	3	2	11	2	3	3	3	11	3	7	2	4	16	14	14	13	12	53	17	13	4	11	45	9	8	8	14	39	78	62	53	60	253	245
City ...	257	229	195	239	920	85	90	66	68	309	59	60	47	49	215	61	71	55	51	238	69	98	66	72	305	179	201	181	185	746	299	312	197	270	1078	293	259	204	308	1064	1302	1320	1011	1242	4875	§ 4427

All deaths occurring in Public Institutions have been allotted to the wards to which they properly belong.

* Includes the Royal Infirmary, etc.

† Includes the Union Infirmary, St. Joseph's Home, etc.

‡ Includes the City Hospital, Walker Gate, etc.

§ Civilians only.

TABLE III. OF THE LOCAL GOVERNMENT BOARD.
RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED JANUARY 1ST, 1917.

CAUSE OF DEATH.	AGE PERIODS.																WARDS—GROSS DEATHS.														TRANS-FERABLE DEATHS.		Deaths in Institutions in the City of "Residents" or "Non Residents"									
	GROSS								NETT.								Benwell.	Fenham.	Stephenson.	Armstrong.	Arthur's Hill.	St. Nicholas.	Elswick.	Westgate.	St. John's.	St. Thomas.	St. Andrew's.	Jesmond.	All Saints.	Dene.	Heaton.	Byker.		St. Lawrence.	St. Anthony's.	Walker.	TOTAL.	Inward.	Outward.	Net Deaths		
	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL.	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.																									65 years and above.	TOTAL.
I.—General Diseases.																																										
Enteric Fever	...	...	1	2	3	4	1	...	11	...	...	1	2	3	3	1	...	10	1	...	...	1	...	...	2	2	...	...	...	1	...	...	2	1	11	...	1	10	10
Malaria	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	11	...	1	10	...	
Measles	18	29	18	3	68	18	28	18	3	67	4	2	1	4	7	5	4	7	4	9	7	7	4	68	...	1	67	5	
Scarlet Fever	1	3	11	9	1	25	1	3	11	9	24	3	...	1	4	...	1	12	1	1	3	3	4	2	25	...	1	24	22	
Whooping Cough	29	30	18	1	78	30	30	17	1	78	1	2	9	3	2	2	3	5	14	3	5	4	3	7	7	4	78	1	1	78	1
Diphtheria	4	4	14	8	30	4	4	13	7	28	6	1	1	1	1	2	3	5	2	...	3	1	2	1	3	1	4	2	30	...	2	28	23	
Influenza	1	1	5	12	18	37	1	...	1	...	5	11	18	36	2	3	1	1	2	...	8	2	...	3	1	3	3	5	2	2	1	37	...	1	36	...		
Erysipelas	2	1	...	...	...	...	2	...	6	2	1	...	...	...	1	2	...	6	...	...	...	...	...	...	1	...	...	...	...	3	...	...	...	2	6	...	...	6	3
Other Epidemic Diseases	1	1	...	...	...	...	...	...	2	1	1	...	...	...	1	...	...	2	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	6	...	...	2	...
Pyæmia, Septicæmia	1	1	...	1	1	2	...	1	6	1	1	...	1	...	...	...	1	4	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	6	...	2	4	5	2
Tetanus	...	...	...	1	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	2
Mycoses	...	...	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...		
Pulmonary Tuberculosis (not acute)	...	10	7	21	71	165	98	10	382	...	10	7	20	63	178	98	12	388	22	10	29	28	22	9	19	20	28	21	21	7	36	9	21	22	25	18	15	382	25	19	388	129
Acute Phthisis	...	...	2	1	10	8	4	...	25	...	...	2	1	10	11	5	...	29	2	1	1	1	...	1	1	...	1	...	1	...	5	3	2	...	25	5	1	29	1
Acute Military Tuberculosis	...	...	1	2	1	1	...	...	5	...	...	...	2	2	1	...	...	3	1	...	...	...	...	...	...	...	...	2	...	...	...	...	...	5	...	2	3	3	...
Tuberculous Meningitis	14	24	16	21	6	5	1	1	88	14	23	15	18	2	4	1	1	78	8	8	8	10	...	2	...	5	4	11	1	...	7	...	11	1	4	7	88	1	11	78	25	
Tuberculosis of Peritoneum and Intestines	3	8	8	9	12	8	2	...	50	3	8	7	5	5	3	1	...	32	2	2	3	3	2	...	1	2	1	18	1	...	2	...	6	3	2	1	50	1	19	32	19	
Tuberculosis of Spinal Column	...	1	1	1	1	3	2	1	10	...	...	1	1	1	3	1	1	7	1	...	1	...	...	...	...	1	...	4	...	...	...	...	2	1	10	...	3	7	6
Tuberculosis of Joints	...	...	2	1	1	1	...	...	5	...	...	1	1	1	...	...	1	4	...	...	1	...	...	...	...	...	...	2	...	...	...	...	...	5	1	2	4	2	
Tuberculosis of other Organs	1	...	1	3	1	4	...	...	10	1	...	2	...	...	...	...	1	4	...	...	...	1	...	...	...	...	...	5	2	...	...	...	...	10	1	7	4	5	
Disseminated Tuberculosis	1	...	2	2	2	2	...	...	9	1	...	2	2	3	3	1	...	12	2	...	...	...	...	...	...	1	2	2	...	1	...	...	...	9	4	1	12	2	
TOTAL TUBERCULOSIS	19	43	40	61	105	197	107	12	584	19	41	34	52	86	202	107	16	557	38	21	43	42	25	13	22	29	36	66	29	8	46	9	27	46	32	26	26	584	38	65	557	192
Rickets, Softening of Bones	11	14	8	33	11	13	7	31	1	...	2	1	5	10	1	4	1	...	2	1	1	3	33	...	2	31	3
Syphilis	15	...	1	...	2	3	21	14	...	1	...	1	2	18	...	1	1	2	6	4	3	2	2	21	1	4	18	11		
Other Venereal Diseases	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	1	1
Cancer of the Buccal Cavity	1	3	15	12	31	1	2	14	13	30	1	1	3	1	1	1	4	3	...	3	...	2	3	4	2	1	31	1	2	30	6
Cancer of the Stomach, Liver, etc.	15	58	34	107	6	43	32	81	2	8	5	3	5	1	3	2	8	26	14	4	2	7	5	7	1	3	107	2	28	81	36	
Cancer of the Peritoneum, Intestines, and Rectum	1	1	4	34	30	70	3	24	27	54	3	2	4	2	2	...	5	4	3	17	9	3	2	3	3	5	...	2	1	70	1	17	54	17	
Cancer of the Female Genital Organs	1	8	23	3	35	7	19	2	28	1	...	1	2	1	...	1	1	2	9	4	1	2	1	...	2	1	1	35	...	7	28	5		
Cancer of the Breast	...	...	...	...	5	10	8	...	23	...	...	...	...	4	8	7	19	1	...	1	1	1	1	5	...	1	6	2	...	1	...	1	...	1	23	...	4	19	7
Cancer of the Skin	...	...	...	...	...	3	4	...	7	...	...	...	...	...	4	4	...	8	1	...	3	...	...	...	...	1	...	2	...	...	...	...	...	...	7	1			

TABLE III. OF THE LOCAL GOVERNMENT BOARD.—CONTINUED.
RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED JANUARY 1ST, 1917.

CAUSE OF DEATH.	AGE PERIODS.																	WARDS—GROSS DEATHS.																	TRANS-FERABLE DEATHS.		Net Deaths.	Deaths in the City of "Residents" or "Non-Residents."						
	GROSS.								NETT.									Benwell.	Fenham.	Stephenson.	Armstrong.	Arthur's Hill.	St. Nicholas'.	Elswick.	Westgate.	St. John's.	St. Thomas'.	St. Andrew's.	Jesmond.	All Saints.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.			TOTAL.	Inward.	Outward.			
	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL.	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.																									TOTAL.		
<i>Brought forward</i>	395	238	168	165	211	524	827	664	3,192	393	228	157	138	156	469	815	678	3,034	193	108	241	150	121	36	145	163	237	353	198	71	261	77	145	215	166	150	162	3,192	156	314	3,034	789		
V.—Diseases of Digestive System.																																												
Diseases of the Teeth and Gums	1	...	1	1	1	1	1	1	...	
Other Diseases of the Mouth and Annexe	3	...	1	4	3	3	2	...	1	1	3	...	1	2	...		
Diseases of the Pharynx, Tonsillitis	1	...	1	1	3	1	...	1	2	1	1	1	...	
Diseases of Oesophagus	1	...	1	1	...	1	16	...	7	9	8	
Perforating Ulcer of Stomach	2	5	7	2	16	1	2	5	1	9	...	2	1	2	...	7	1	2	...	3	...	
Inflammation of Stomach	1	1	2	1	...	3	1	1	21	...	
Other Diseases of the Stomach	8	5	1	5	3	2	24	8	5	5	2	1	21	1	2	1	1	1	1	3	3	2	1	1	3	2	1	24	...	3	21	...	
Zymotic Diarrhoea (under 2 years), including Dysentery, Epidemic or Zymotic Enteritis, and Intestinal Catarrh	82	26	108	82	25	107	12	2	11	7	3	...	2	4	13	5	6	2	6	...	4	7	7	6	11	108	1	2	107	11		
Diarrhoea and Enteritis (2 years and over)	7	1	1	16	15	5	45	7	16	15	7	45	3	3	2	4	1	...	7	1	4	9	1	1	3	...	1	45	9	9	45	16		
Intestinal Parasites	1	1	1	1	2	47	...	37	10	41	
Appendicitis	13	13	14	7	...	47	5	4	...	1	...	10	3	2	54	...	28	26	36
Hernia, Intestinal Obstruction	8	1	1	3	2	9	17	13	54	6	1	...	1	...	5	7	6	26	1	1	3	1	2	2	29	1	3	2	1	1	1	3	2	...	7	...	3	4	1	
Other Diseases of the Intestines	2	1	2	...	2	...	7	2	1	1	4	...	1	2	1	1	7	...	3	...
Acute Yellow Atrophy of Liver	1	1	1	3	1	1	1	3	1	29	...	9	20	9
Cirrhosis of the Liver	9	15	5	...	29	5	10	5	20	1	...	4	...	1	3	1	2	7	1	2	1	1	1	12	...	4	8	4	
Biliary Calculi	8	4	...	12	5	3	8	...	1	...	1	2	4	13	2	6	9	6
Other Diseases of the Liver	1	8	4	...	13	1	5	3	9	...	1	1	...	1	1	...	5	1	1	1	11	...	4	7	9
Peritonitis (cause unstated)	...	1	2	6	...	1	1	...	11	...	1	1	4	...	1	7	1	2	1	1	...
Other Diseases of the Digestive System	1	1	1	1
VI.—Non-Venereal Diseases of Genito-Urinary System and Annexe.																																												
Acute Nephritis	1	2	...	6	6	5	5	2	27	1	2	...	5	2	5	7	2	24	3	...	1	1	...	3	7	3	...	2	...	1	1	3	2	...	27	4	7	24	9	
Bright's Disease	4	6	23	48	39	120	4	6	18	38	36	102	8	5	3	7	7	...	8	...	4	23	4	8	8	5	6	5	...	1	4	1
Other Diseases of the Kidney and Annexe	1	2	1	1	5	1	1	1	1	4
Calculi of the Urinary Passages	1	1
Diseases of the Bladder	4	2	6	...	12	1	1	6	...	8	...	1
Diseases of the Urethra, Urinary Abscess, &c.	3	2	3	...	8	2	1	...	3	1
Diseases of the Prostate	7	20	27	4	8	...	12	1					

REPORT OF THE
CHIEF HEALTH VISITOR AND
SUPERINTENDENT OF MIDWIVES.

II.—THE CHILD.

INFANTILE MORTALITY, MATERNITY, AND
CHILD WELFARE.



INFANTILE MORTALITY.

SUMMARY OF BIRTHS AND DEATHS, 1916.

	LEGITIMATE.			ILLEGITIMATE.			Grand Total.
	M.	F.	Total.	M.	F.	Total.	
Total Births in the Year	3,689	3,297	6,986	180	166	346	7,332
Nett „ „	3,660	3,278	6,938	184	162	346	7,284
Nett Deaths „	...	...	836	41	22	63	899

BIRTHS (UNCORRECTED) IN WARDS IN THE DIFFERENT QUARTERS OF THE YEAR 1916.

WARD.				1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	TOTALS.
St. Nicholas'	...	...	...	18	20	13	10	61
St. Thomas'	...	...	...	61	51	63	51	226
St. John's	...	...	...	127	133	124	114	498
Stephenson	...	...	...	139	140	155	129	563
Armstrong	...	...	...	121	128	133	105	487
Elswick	...	...	...	69	61	74	72	276
Westgate	...	...	...	114	107	105	109	435
Arthur's Hill	...	..	...	46	47	47	35	175
Benwell	...	...	...	137	143	147	134	561
Fenham	...	...	...	78	77	70	62	287
All Saints'	...	...	...	144	131	124	127	526
St. Andrew's	...	...	...	79	101	72	68	320
Jesmond	...	...	...	39	73	48	40	200
Dene...	...	...	...	59	72	61	49	241
Heaton	...	...	...	85	78	72	70	305
Byker	...	...	...	158	155	134	115	562
St. Lawrence	...	...	...	129	167	151	143	590
St. Anthony's	...	...	...	123	141	151	126	541
Walker	...	...	...	112	139	106	121	478
City	...	...	...	1,838	1,964	1,850	1,680	7,332

DISTRIBUTION OF DEATHS.

WARDS.	Net Deaths of Children under 1 year of age in 1916.					Children under 1 year of age— Death rate per 1,000 Births.	Birth Rate per 1000 Popula- tion. (Uncor- rected.)
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Whole Year.		
St. Nicholas' ...	1	2	1	...	4	66	16·7
St. Thomas' ...	8	6	3	6	23	102	15·6
St. John's ...	17	21	23	21	82	165	31·7
Stephenson ...	17	11	23	21	72	130	29·3
Armstrong ...	13	15	8	14	50	103	30·4
Elswick ...	10	8	3	11	32	116	21·3
Westgate ...	16	14	7	10	47	108	27·8
Arthur's Hill ...	3	6	4	5	18	103	15·0
Benwell ...	21	13	18	17	69	123	31·1
Fenham ...	9	12	11	12	44	153	25·4
All Saints' ...	25	20	10	21	76	144	29·0
St. Andrew's ...	14	18	10	7	49	153	25·0
Jesmond ...	2	1	3	4	10	50	17·7
Dene ...	5	8	3	3	19	79	19·3
Heaton ...	11	8	8	9	36	118	19·2
Byker ...	21	16	16	26	79	140	31·4
St. Lawrence ...	20	14	16	18	68	115	32·2
St. Anthony's ...	17	19	10	16	62	115	33·5
Walker ...	21	12	15	11	59	123	29·0
City ...	251	224	192	232	899	123	26·4

All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 1ST JANUARY, 1917.

CAUSE OF DEATH.	AGE PERIODS																				Deaths in Institutions in the City of "Residents" or "Non-Residents."
	GROSS.										NETT (after allowing for transfers).										
	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-3 Months.	3-6 Months.	6-9 Months.	9-12 Months.	Total under 1 Year of Age.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-3 Months.	3-6 Months.	6-9 Months.	9-12 Months.	Total under 1 Year of Age.	
I.—General Diseases.																					
Measles	1	9	8	18	...	...	...	...	...	...	1	9	8	18	...
Scarlet Fever	1	1	...	...	...	...	...	...	...	...	1	1	...
Whooping Cough	2	7	11	9	29	...	...	...	...	...	3	7	11	9	30	...
Diphtheria	2	1	1	4	...	...	...	...	...	...	2	1	1	4	4
Influenza	1	...	...	...	1	...	...	...	...	...	1	...	...	...	1	...
Erysipelas	1	1	...	...	2	...	...	...	...	...	1	1	...	...	2	1
Other Epidemic Diseases	1	...	...	1	...	...	...	...	1	...	1	...	...	1	...	...	...	...	1	...
Pyæmia, Septicæmia	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
Tuberculous Meningitis	1	3	3	7	14	...	...	...	...	...	1	3	3	7	14	1
Tuberculosis of Peritoneum and Intestines	2	1	3	...	...	...	...	...	...	...	2	1	3	...
Tuberculosis of other Organs	1	...	1	...	...	...	...	...	...	...	1	...	1	...
Disseminated Tuberculosis	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
TOTAL TUBERCULOSIS	1	4	6	8	19	...	...	...	...	...	1	4	6	8	19	1
Rickets, Softening of Bones	3	3	5	11	...	...	...	...	...	...	3	3	5	11	...
Syphilis	3	...	1	...	4	7	2	2	...	15	3	...	1	...	4	7	1	2	...	14	6
Other Venereal Diseases	1	...	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	1	1
Other General Diseases	1	...	...	...	1	...	...	...	...	...	1	...	...	...	1	...
II.—Diseases of Nervous System and Organs of Special Sense.																					
Cerebro-Spinal Fever	2	...	2	...	...	...	...	...	...	...	2	...	2	1
Meningitis, other forms or undefined	3	4	1	1	9	...	...	...	...	...	3	4	1	1	9	...
Locomotor ataxy	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
Infantile Convulsions	9	6	2	2	19	18	16	12	6	71	9	6	2	2	19	18	16	12	6	71	...
Other diseases of the nervous system	2	...	...	2	...	...	...	...	...	...	2	...	...	2	...
III.—Diseases of Respiratory System.																					
Diseases of the Larynx	1	...	...	1	2	...	...	...	...	...	1	...	...	1	2	...
Bronchitis	2	3	5	10	24	13	18	70	...	...	2	3	5	10	24	12	18	69	2
Broncho-pneumonia	1	1	3	5	20	22	33	33	113	...	1	1	3	5	20	22	33	33	113	8
Lobar Pneumonia	1	...	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	1	...
Pneumonia (type not stated)	1	6	8	5	20	...	...	...	...	...	1	6	7	5	19	1
IV.—Diseases of Digestive System.																					
Diseases of the mouth and annexa	1	2	3	...	...	...	...	3	...	...	1	2	3	...	...	...	...	3	...
Diseases of the Pharynx, Tonsilitis	1	1	...	...	...	...	...	...	...	...	1	1	...
Inflammation of Stomach	1	...	...	1	1	...	...	...	1	...	1	...	...	2	...
Carried forward	12	8	9	10	39	66	97	101	97	400	13	8	9	10	40	67	96	99	97	399	25

TABLE IV. OF THE LOCAL GOVERNMENT BOARD.—*Continued.*
 RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 1ST JANUARY, 1917.

CAUSE OF DEATH.	AGE PERIODS.																				Deaths in Institutions in the City of "Residents" or "Non-Residents."
	GROSS.										NETT (after allowing for transfers).										
	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-3 Months.	3-6 Months.	6-9 Months.	9-12 Months.	Total under 1 Year of Age.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-3 Months.	3-6 Months.	6-9 Months.	9-12 Months.	Total under 1 Year of Age.	
Brought forward ...	12	8	9	10	39	66	97	101	97	400	13	8	9	10	40	67	96	99	97	399	25
IV.—Diseases of Digestive System— (Continued).																					
Other Diseases of the Stomach ...	...	...	...	1	1	...	4	3	...	8	...	...	...	1	1	...	4	3	...	8	...
Diarrhoea and Enteritis, including Dysentery, Epidemic or Zymotic Enteritis, and In- testinal Catarrh ...	1	...	3	2	6	15	35	20	6	82	1	...	3	2	6	15	36	19	6	82	8
Hernia, Intestinal Obstruction ...	...	...	...	1	1	1	5	...	1	8	...	...	...	1	1	1	4	...	...	6	7
Other Diseases of the Intestines ...	1	...	...	...	1	1	...	...	...	2	1	...	...	...	1	1	...	...	...	2	...
V.—Non-Venereal Diseases of Genito- Urinary System and Annexa.																					
Acute Nephritis ...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
VI.—Diseases of Skin and Cellular Tissue.																					
Carbuncle, Boil ...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
Phlegmon, Acute Abscess ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diseases of the Integumentary System ...	...	...	1	1	2	2	...	1	...	5	...	...	1	1	2	2	...	...	...	4	1
VII.—Diseases of Bones, &c.																					
Diseases of Locomotor System ...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
VIII.—Malformations.																					
Congenital Malformations ...	12	6	3	3	24	7	3	3	1	38	11	5	3	2	21	6	2	2	...	31	8
IX.—Diseases of Early Infancy.																					
Premature Birth ...	112	16	22	5	155	8	1	...	...	164	109	16	22	5	152	8	...	...	...	160	6
Infantile Atrophy, Debility, and Marasmus ...	50	15	19	10	94	39	24	8	2	167	50	15	19	9	93	37	23	8	2	163	14
Icterus Neonatorum, Sclerema and Œdema Neonatorum ...	4	1	...	1	6	...	...	...	...	6	4	1	...	1	6	...	...	...	...	6	1
Diseases of Umbilicus, etc. ...	...	...	1	...	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	1	...
Atelectasis ...	2	...	...	...	2	...	...	...	...	2	2	...	...	...	2	...	...	...	...	2	...
Injuries at Birth ...	2	...	...	...	2	...	...	...	...	2	2	...	...	...	2	...	...	...	...	2	...
Other Diseases peculiar to early infancy ...	7	1	...	...	8	...	...	...	...	8	6	1	...	...	7	...	...	...	...	7	1
Lack of care ...	5	...	...	...	5	...	...	...	...	5	5	...	...	...	5	...	...	...	...	5	...
X.—Affections produced by External Causes.																					
Burns (conflagration excepted) ...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	1	...	1	2
Injury by firearms... ..	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	1	...
Other Violence ...	1	1	...	...	2	...	...	2	...	4	1	1	...	...	2	...	...	2	...	4	...
XI.—Ill-Defined Causes.																					
Teething ...	...	...	...	...	...	...	2	6	2	10	...	...	...	...	...	...	2	6	2	10	...
Other Ill-defined Deaths ...	2	...	...	...	2	...	...	...	...	2	2	...	...	...	2	...	...	...	...	2	1
TOTAL ...	211	48	58	34	351	140	174	146	109	920	207	47	58	32	344	138	170	140	107	899	74

SUMMARY OF MORTALITY, 1901-1916.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
Death-rate of Infants under 1 year per 1,000 births ...	177	139	166	155	138	153	126	139	122	123	137	101	122	137	133	123
Death-rate of Infants under 3 months per 1,000 births ...	83.8	74.8	84.9	82.6	71.6	75.6	68.6	76.6	64.8	66.9	71.5	60.3	67.7	70.7	68.2	66.2
Death-rate of Infants from <i>Premature Birth</i> , per 1,000 births ...	20.1	20.7	25.1	20.9	19.7	22.0	21.2	24.8	19.8	18.8	21.7	19.3	22.0	19.5	24.0	22.0
Death-rate of Infants under 1 year per 1,000 births, from <i>Premature Birth</i> plus all <i>Congenital Causes</i> * ...	40.8	51.7	62.1	60.6	52.1	61.5	43.0	44.6	42.3	42.6	43.9	48.0	57.4	51.1	56.6	51.0
Death-rate of Infants under 1 year per 1,000 births, from <i>Diarrhoea</i> and all other <i>Digestive Diseases</i> † ...	45.7	12.8	26.9	21.8	22.4	35.2	12.7	24.8	13.5	16.7	25.1	7.8	16.6	25.3	20.1	14.3

Prior to 1911, figures uncorrected for cases belonging to other districts.

* "All *Congenital Causes*" includes Syphilis, Debility at Birth, Injury at Birth, Atelectasis, Malformation of Heart, Spina Bifida, Hydrocephalus, Imperforate Anus, Cleft Palate, Hare-Lip, other Congenital Defects, and other and undefined Accidents of Childbirth.

† "*Diarrhoea and all other Digestive Diseases*" includes Diarrhoea, Dysentery, Epidemic or Zymotic Enteritis, Thrush, Starvation, Want of Breast Milk, Rickets, Sore Throat, Quinsy, Diseases of Stomach, Enteritis, Cirrhosis of Liver, Obstruction of Intestine, Peritonitis, and other Disease of Digestive System.

For particulars of deaths, as to causes, etc., see page 44A.

DEATHS OF CHILDREN UNDER SCHOOL AGE.

The mortality rate among children, aged 1 to 5 years, in 1916 per 1,000 births in the years 1912 to 1915 (inclusive) was 15.9,

The Report of the Chief Health Visitor and Superintendent of Midwives is as follows:—

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

Herewith I beg to submit my Report of work done in the year 1916.

MIDWIVES ACT, 1902.

Midwives Roll.—During the year 1916, 29 midwives notified the Local Supervising Authority of their intention to practise; of these 15 hold the Certificate of the Central Midwives Board or of a recognised hospital, the remainder being on the register as *bona fide* practitioners before the passing of the Midwives Act.

This number, although showing a decrease of 7 on the previous year, still includes all the midwives actually in practice in 1915, for 3 of the 7, although possessing the certificate of the Central Midwives Board, were only engaged in monthly nursing, and the remaining four are old women no longer able to practice.

The midwifery work of the town is practically carried on by 15 midwives, the others only doing odd cases. Certain districts are well provided with well-trained midwives, while in others there is not a single midwife. This deficiency is keenly felt, especially at the present time, when, owing to the exigencies of the times, many of the doctors are so over-worked as to be unable to undertake midwifery cases, hence the services of the kind neighbour, or the ever-ready “handy woman” have to be requisitioned in cases of necessity. This state can hardly be regarded as ideal, for the advantages gained by the mother and child through the presence of a well-trained midwife at the confinement and during the lying-in period are far reaching. The midwives are ever eager to further their knowledge and make the best possible use of what is gained for the safety and care of their patients.

Inspection.—143 Visits were paid to the midwives at their homes, to inspect the hygienic condition of their dwellings, to see that their bags of appliances were complete and in accordance with the rules of the Central Midwives Board, that their chart books were filled in daily recording the temperature and pulse of each patient, and that their registers were entered up correctly and kept up to date ; also to investigate any case of septicæmia occurring in a midwife's practice ; any still-birth ; any case of ophthalmia neonatorum, and any death of a child occurring before a doctor's arrival. The findings at these visits were on the whole satisfactory. The midwives are careful and cleanly in their methods, taking every precaution to prevent the occurrence of abnormal conditions.

Births attended by Midwives.—2,493 Live births and 83 still births were attended during the year, this being an increase of 132 in the former and 36 in the latter. Midwives have attended 34 per cent. of the total births of the city in 1916, as compared with 31 per cent. in 1915.

Lectures to Midwives.—42 Weekly meetings for practising midwives were held at the office of the Superintendent of Midwives during the year. These meetings take the form of a discussion on points relating to their work, and are well attended. Every possible effort is made to bring about as close a co-operation as possible between the midwives and the Health Department. It is pointed out to them how valuable their work is and what helpful advice is in their power to give to the expectant or lying-in-mother. The mothers are advised on every possible occasion to engage their attendant as early as they can ; and the midwives make a point of visiting each case at least once to advise her on many important points. At these visits midwives have frequently been able to discover abnormal symptoms, and immediately advise medical treatment, either from their own doctor or from the maternity centres in connection with the Mothers' and Babies' Welcome Society.

Notices to Local Supervisory Authority from Midwives who had sent for medical help. The following were the details:—

FOR MOTHER.					
Uterine Inertia	...	...	...	19	
Contracted Pelvis	...	...	...	2	
Abnormal Presentation	...	...	...	18	
Ante partum Hæmorrhage	...	...	...	7	
Ruptured Perineum	...	...	...	17	
Rise of Temperature	...	...	...	8	
Post Partum Hæmorrhage	...	...	...	5	
					100
FOR CHILD.					
Immaturity	...	...	...	16	
Prematurity	...	...	...	31	
Cyanosis	...	...	...	5	
Congenital Deformity	...	...	...	11	
					98

This makes a total of 198, as compared with 169 in 1915, and about 7 per cent. of the total cases. It is a very low percentage when compared with other towns.

Puerperal Septicæmia.—22 Cases were notified during the year, 10 of which were attended by midwives.

Ophthalmia Neonatorum.—72 cases have been notified, 33 of these occurring among midwives' cases, the remainder of cases attended by doctors of the Maternity Hospital. In all cases attended by midwives, a doctor was called in for treatment. A total of 90 visits and revisits were paid to cases of Ophthalmia during the year.

Maternity and Child Welfare Centres.—At present there are 7 centres of the Mothers' and Babies' Welfare Society in the town.

Until the latter part of 1916, only three were maternity centres, the remaining 4 being weighing centres; all are now on an equal basis and a lady doctor attends each fortnightly for an advisory clinic instead of the 3 maternity centres weekly. Expectant and nursing mothers and children up to 5 years are seen by the doctor. A Health Visitor attends each centre weekly, weighs the children, and in the doctor's absence gives advice on many important points (especially feeding and clothing) to the mothers, and gives a Health Talk on simple subjects.

The attendance at the centres is not as good as it might be; the total number of attendances of expectant mothers at the 7 centres was 111; of nursing mothers 113; of children under 1 year 3,456; and of children over 1 year 2,893; and the total number of individual children of all ages up to 5 years was 959; this only gives each child an average of 7 attendances. Every effort is being made to increase the number of children attending, but many and varied excuses are offered, hence it is only too obvious that a very large proportion do not attend at all, and it is only by home visiting that these mothers can be seen and advised.

Pamphlets ("Advice to Mothers") and a large number of leaflets on Diarrhoea, Measles, and Fly Prevention were distributed by the Health Department officers and others during the year, also leaflets on the "Best food to buy during the War."

Notifications of Births.—4,316 notifications of births have been received out of a total of 7,331 registered.

Particulars of those not notified were obtained from the registrars of the sub-districts at a later date.

The following table shows from whom the notifications have been received :—

Notified by				Living Births.	Still Births.	
Medical Practitioners	...	...	...	1,157	...	39
Midwives	...	...	...	2,493	...	83
Maternity Hospital	...	...	...	569	...	23
Union Hospital	...	...	...	52	...	11
Parents	...	...	...	45	...	...
				—	—	
				4,316	156	

Still-Births.—Of the total notifications received under the Act, still births have been in the following proportion :—1909, 4·1%; 1910, 3·9%; 1911, 4·1%; 1912, 3·2%; 1913, 3·4%; 1914, 3·6%; 1915, 3·4%; 1916, 3·6%.

The number of still-births has considerably increased. This may be due to the fact that a larger number of pregnant

women are working, and also to the nervous strain that many have constantly to endure.

The following are particulars of the 83 still-births attended by midwives :—

Duration of Pregnancy.—Under 7 months, 15; at 7 months, 21; at 8 months, 8; full term, 39.

Presentation.—Vertex, 57; breech, 12; footling, 12; placenta prævia, 1; transverse, 1.

Supposed Cause of Still-Births.—Health of mother, 30; abnormal presentations, 29; over-work and exertion, 20; severe kidney disease, 4.

In 34 instances it was the 1st child; in 12 cases the 2nd; in 12 the 3rd; in 10 the 4th; in 3 the 5th; in 3 the 6th; in 2 the 7th; and in 7 the 8th.

It was the 1st still-birth in 57 cases; the 2nd in 11; the 3rd in 8; the 4th in 5; and the 5th or more in 2.

Occupation of Mother.—35 of the mothers had been working during pregnancy.

Work of the Health Visitors.—The staff of Health Visitors has been increased during the year, viz., from 4 to 9, with the addition of a clerk. The result of this increased number of trained workers has been that it is now possible to pay many more subsequent visits to children under 1 year, who require constant supervision. The nineteen wards of the city are divided among the 9 Health Visitors, according to population, and each visits and re-visits systematically the births in that area, an average of 730 each; card index records are kept of all the visits paid, which average 13 per day for each health visitor, in addition to her other work. As soon as possible during the 2nd week, in the case of a midwife's notification, and during the 3rd, in a doctor's case, the Health Visitor visits the birth and advises the mother as

to the proper feeding and rearing of the infant, tells them about the "Welcomes," and tries to induce them to attend. If the mother is willing the baby is weighed, and the Health Visitor tries, by assuming a friendly attitude towards the mother, to gain her confidence. The visit is almost invariably welcomed, and subsequent visits are looked forward to by the mothers. As far as can be done each case is visited every two or three months, and oftener if specially necessary. Every mother is given a printed post card, which she is instructed to send to the Health Department if baby is not thriving, and immediately a visit is paid to the house.

During the year 6,574 births were visited, and a total of 16,867 re-visits were paid subsequently to those births which required further visiting; 364 visits were paid to expectant mothers; 1,067 to children under 5; and 1,563 special visits. A very special effort is being made to keep under supervision all children over one year who are at all backward, as, unfortunately, the ex-baby is often neglected when a new baby comes.

All cases of neglect, cruelty, privation and sickness were referred to the appropriate organisations, and insanitary conditions, numbering 285, were reported to the Inspector of Nuisances.

5,751 infants born in 1915, and on the visiting list of the Department, were due to attain the age of twelve months in 1916. Of these, 467 were lost sight of through change of address. Of the remaining 5,284, 729 died, which gives a mortality rate of 138 per 1,000 births, as compared with 125 for the whole City. This may seem to be a very high mortality rate, but the greater number of deaths of infants occur in the over-crowded and poor districts, which are those chiefly visited.

Housing Conditions.—611 births occurred in single-roomed dwellings, and of these 121 died, a mortality rate of 196 per 1,000 births; of 2,333 births in two-roomed dwellings,

343 died, a mortality rate of 147 per 1,000 births; of 1,624 births in three-roomed dwellings, 180 died, a death rate of 113 per 1,000; and of 756 births in houses of more than three rooms, 85 died, a death rate of 112 per 1,000 births. These figures, as usual, go to prove how great a part in the production of a high infantile death rate is played by the single-roomed tenement, with its lack of the hygienic conditions necessary to healthy existence.

During the nine years 1908-1916, there have been 67,789 births and 8,618 deaths of infants under one year; this gives an average infantile mortality for the whole City of 127 deaths per 1,000 births. Of these, 17,928 were under the observation of the Health Visitors, and of these 2,214 died. This gives a death rate of 123 per 1,000 births.

The following is an analysis :—

YEAR.	LIVING IN							
	1 Room.		2 Rooms.		3 Rooms.		More than 3 Rooms.	
	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
1908	247	32	515	57	312	32	13	2
1909	339	53	694	86	168	32	29	3
1910	536	62	723	68	51	4	7	2
1911	462	68	794	79	77	6	20	1
1912	465	48	746	60	110	6	25	1
1913	241	40	348	28	91	3	17	3
1914	245	36	375	31	90	11	25	3
1915	631	104	2140	306	1,416	144	692	74
1916	611	121	2333	343	1,584	180	756	85
9 Years ...	3,777	564	8,668	1,058	3,899	418	1,584	174
Death rate per 1,000 births visited. (9 Years).	149·5		122·5		107·25		109·75	

The cleanliness of the 5,284 homes visited in 1916 was found to be as follows :—

Good ... 3,630, or 68 %.

Fair ... 1,119, or 22 %.

Dirty ... 535, or 10 %.

Parental Employment.—

		At Home.		Working.
Before confinement	...	5,055	...	229, or 4%.
After confinement	...	5,026	...	258, or 5%.

Health of Mother.—

Good	...	...	...	...	...	4,263, or 80·75%.
Fair	...	...	...	...	...	729, or 13·75%.
Poor	...	...	...	...	...	229, or 5·5%.

It will seem that neither the health of the mother nor her employment can have had of itself any material effect on the infantile death rate, as only 5% of the nursing mothers have poor health, and only about the same percentage was engaged on work outside their own homes. It remains then that the housing or economic conditions are to a very large extent responsible for the high infantile death rate.

The Feeding of the 5,284 children under supervision was as follows:—

			Breast.		Mixed.		Artificial.
Children who survived 1st year—							
Feeding in 1st month	...	...	85½%	...	7¼%	...	7½%
Children who died in 1st year	...	...	80½%	...	4%	...	15½%
Children who survived 1st year—							
Feeding at 12 months	...	...	20%	...	45%	...	35%
Of 78 dying from Diarrhœa—							
Feeding at death	...	...	72½%	...	5½%	...	22%

A very small proportion of the mothers gave up breast-feeding voluntarily before nine months. Artificial feeding is only as a rule resorted to when absolutely necessary for the sake of the health of the mother or of the child.

Deaths among Notified and Unnotified Births.—Of the 729 deaths which occurred among the births visited 55% had been “notified births;” of the remainder which were visited a large number were already dead before a visit was paid. Every effort is made to make known the responsibilities of the parent under the Notification of Births Act, both by the Health Visitors directly and by word of mouth and by notices at the Welcomes.

Illegitimacy.—The infantile mortality rate among legitimate children was 125 per 1,000 births, whereas that among illegitimate babies was 185 per 1,000.

Sex.—The death rate among male children was 135 per 1,000 births, and among female children 112 per 1,000 births.

The increased cost of food makes it very difficult for many mothers to supply their children with an adequate amount of the proper kinds of food. This particularly applies to milk; the supply is scarce and the price is prohibitive, hence the tinned skimmed variety is greatly used instead of good fresh milk.

Measles and Rubella.—In addition to the infants the Health Visitors also visit cases of measles and rubella notified by the medical practitioners, parents, or schools, and the report on this part of the work will be found in the Infectious Diseases Section, under “Measles and Rubella,” on pages 65-7.

I am, Sir,

Your obedient servant,

GEORGINA B. CAMERON,

Chief Health Visitor and

Superintendent of Midwives.

Health Department,

Town Hall,

Newcastle-upon-Tyne.

REPORTS OF THE
RESIDENT MEDICAL OFFICER OF THE
INFECTIOUS DISEASES HOSPITAL
AND THE TUBERCULOSIS OFFICER.

III. INFECTIOUS DISEASE.

FEVERS, FOOD-POISONING EPIDEMICS,
CITY HOSPITALS FOR INFECTIOUS DISEASES,
TUBERCULOSIS, DISINFECTION, BACTERIOLOGY.

INFECTIOUS DISEASES.

NUMBER OF CASES PER 1,000 POPULATION IN 1916.

DISTRICT.	ATTACK-RATE PER 1,000 POPULATION.						
	Small-pox.	Typhus.	Scarlet Fever.	Diphtheria.	Enteric Fever and Continued Fever.	Puerperal Fever.	Erysipelas.
*England and Wales ...	0·00	0·00	2·19	1·50	0·16	0·06	0·54
82 County Boroughs ...	0·01	0·00	2·21	1·45	0·16	0·08	0·59
NEWCASTLE-UPON-TYNE ...	...	...	2·62	0·98	0·27	0·08	0·69
Hull ...	...	...	2·36	1·35	0·31	0·05	0·53
Leeds ...	...	...	2·01	0·96	0·12	0·06	0·53
Bradford ...	...	...	1·16	1·90	0·27	0·12	0·61
Sheffield ...	...	...	1·81	1·75	0·12	0·10	0·71
Manchester ...	0·00	...	1·89	0·94	0·15	0·17	0·46
Salford ...	0·04	...	2·03	0·96	0·20	0·06	0·54
Liverpool ...	...	0·00	2·94	1·51	0·10	0·07	0·79
Nottingham ...	...	...	1·78	0·83	0·25	0·05	0·87
Leicester ...	...	...	2·96	0·52	0·04	0·07	0·78
Stoke-on-Trent ...	...	...	3·28	3·94	0·15	0·07	0·80
Birmingham ...	...	...	2·20	1·17	0·03	0·20	0·76
Cardiff ...	0·27	...	2·66	2·06	0·15	0·05	0·50
Bristol ...	...	...	1·82	1·18	0·05	0·06	0·54
Portsmouth ...	...	...	1·99	3·42	0·40	0·03	0·43
London ...	0·00	...	2·07	2·06	0·11	0·07	0·67
Gateshead ...	...	...	2·85	0·69	0·09	0·05	0·62
South Shields ...	0·04	...	3·32	0·38	0·06	0·05	0·48
Tynemouth ...	...	...	2·27	0·93	1·12	0·03	0·66
Sunderland ...	...	...	1·84	0·62	0·13	0·03	0·58
Middlesbrough ...	...	...	3·54	3·17	0·29	0·07	0·39
†County of Northumberland	...	...	2·47	1·46	0·18	0·02	0·56
†County of Durham ...	0·00	...	3·31	1·65	0·64	0·03	0·58

*: Including cases in ports, but excluding cases among sailors and soldiers.

† Administrative County.

DEATHS (UNCORRECTED) FROM NOTIFIABLE INFECTIOUS DISEASES
AND NON-NOTIFIABLE ZYMOTIC DISEASES, EXCLUSIVE OF TUBERCULOSIS.

WARD.	Small- pox.	Typhus Fever.	Enteric Fever.	Polio- myelitis	Cere- bro- Spinal Fever.	Puer- peral Fever.	Scarlet Fever.	Diph- theria.	Ery- sipelas.	Measles	Whoop- ing Cough.	Zymotic Diarrhoea (under 2 years of age).
St. Nicholas'	1	...	...	...	...	...	...	...	2	...
*St. Thomas'	2	...	3	2	1	3	...	4	3	5
St. John's	2	...	...	...	...	...	1	5	14	13
Stephenson	2	...	1	1	...	1	9	11
Armstrong	1	...	1	...	...	1	...	4	3	7
Elswick	1	...	4	...	...	...	3	2
Westgate	1	...	...	2	...	1	5	4
†Arthur's Hill	2	...	...	1	...	7	2	3
Benwell...	1	...	1	1	3	6	...	4	1	12
Fenham	1	...	2	2	2
All Saints'	1	...	1	...	...	2	5	6
St. Andrew's	2	1	...	7	5	6
Jesmond...	1	2	...	...	...	2
Dene	2	...	...	4	...
Heaton	1	...	...	2	...	1	...	4	8	4
Byker	3	3	3	3	9	1	7
St. Lawrence	1	1	3	1	...	7	4	7
St. Anthony's	2	...	1	...	4	3	...	7	2	6
†Walker	1	...	16	1	2	2	1	4	5	11
City	11	...	30	10	25	30	5	68	78	108

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children. † Includes Union Workhouse.

† Includes City Hospital for Infectious Diseases.

For particulars of deaths from **Tuberculosis** see pages 94-101.

NOTIFIED CASES OF INFECTIOUS DISEASE, EXCLUSIVE OF TUBERCULOSIS.

AGES OF CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1916.
(TABLE II. OF LOCAL GOVERNMENT BOARD RETURNS).

NOTIFIABLE DISEASE.	AT AGES—YEARS.								TOTAL (ALL AGES).	
	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and up-wards	Ages not known	1916.	1915.
Diphtheria (including Membranous Croup)...	5	93	119	29	22	2	...	2	272	275
Erysipelas	3	5	10	23	73	62	12	3	190	169
Scarlet Fever	5	211	392	75	30	...	...	15	728	1416
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...	1
Enteric Fever ... ..	...	5	31	29	6	3	...	2	77	100
Puerperal Septicæmia...	...	...	...	1	12	...	...	9	22	21
Epidemic Cerebro-Spinal Meningitis }	4	2	5	17	14	1	...	...	43	27
Ophthalmia Neonatorum	72	...	...	...	...	...	...	...	72	31
Acute Poliomyelitis ...	...	4	1	...	...	...	...	...	5	7
Chicken Pox	29	135	98	7	...	1	...	10	280	...
TOTALS	118	455	656	181	157	69	12	41	1,689*	2,047

* Exclusive of Measles and Rubella.

WARD DISTRIBUTION OF INFECTIOUS DISEASES.

(TABLE II. OF LOCAL GOVERNMENT BOARD RETURNS).

WARD.	Small-pox.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Polio-myelitis.	Cerebro Spinal Fever.	Puerperal Fever.	Diphtheria.	Erysipelas.	Ophthalmia Neonatorum.	Measles.	Rubella.	Chicken Pox.	TOTAL.
St. Nicholas'...	Nil.	3	Nil.	2	...	...	...	1	1	2	16	3	7	35
St. Thomas' ...		69		7	1	19	8	21	13	4	134	18	15	309
St. John's ...		20		12	...	...	...	11	8	5	138	20	14	228
Stephenson ...		36		1	...	3	3	13	12	4	80	4	9	165
Armstrong ...		40		5	1	2	...	16	7	4	147	5	16	243
Elswick ...		51		1	...	2	...	16	6	2	173	7	15	273
Westgate ...		46		1	...	2	...	16	11	8	268	8	18	378
Arthur's Hill...		22		3	...	4	1	17	11	2	123	3	20	206
Benwell ...		63		6	...	4	2	37	14	6	239	3	21	395
Fenham ...		32		5	...	1	...	8	9	1	131	5	13	205
All Saints' ...		30		1	1	...	...	9	10	7	190	6	25	279
St. Andrew's...		18		1	...	...	...	5	12	8	107	3	16	170
Jesmond ...		21		4	...	1	...	18	4	3	111	34	14	210
Dene ...		32		1	...	...	1	26	4	1	197	...	12	274
Heaton ..		40		2	...	...	...	7	7	2	227	3	11	299
Byker ...		55		1	...	2	2	13	23	7	247	2	13	365
St. Lawrence		74		6	1	...	2	14	14	2	221	1	24	359
St. Anthony's		30		9	1	...	1	14	13	...	131	1	4	204
Walker ...		46		8	...	3	2	10	12	4	179	7	13	284
City		728		76	5	43	22	272	191	72	3,059	133	280*	4,881

For particulars of cases of **Tuberculosis**, see special section, pages 92-4,

* Part of year only.

WARD INCIDENCE OF INFECTIOUS DISEASES.
EXCLUSIVE OF TUBERCULOSIS.

NOTIFIABLE DISEASES. Cases per 1,000 Population.															Deaths per 1,000 Population. (Uncorrected.)		
WARD.	Small-pox.	Typhus Fever.	Enteric Fever.	Polio-myelitis.	Cerebro-Spinal Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.	Erysipelas.	Measles (including Rubella.)	Chicken Pox.	Ophthalmia Neonatorum.	Measles.	Whoop'g Cough.	Zymotic Diarrhoea (under 2 years of age).		
St. Nicholas'	0.55	...	...	...	0.82	0.27	0.27	5.20	1.91	0.55	...	0.55	...		
*St. Thomas	0.48	0.07	1.31	0.55	4.78	1.45	0.90	10.51	1.04	0.28	0.28	0.20	0.35		
St. John's	0.76	...	...	...	1.27	0.70	0.50	10.04	0.89	0.32	0.32	0.89	0.80		
Stephenson	0.05	...	0.16	0.16	1.87	0.68	0.62	4.37	0.47	0.20	0.05	0.47	0.57		
Armstrong	0.31	0.06	0.12	...	2.50	1.00	0.44	9.50	1.00	0.25	0.25	0.19	0.44		
Elswick	0.08	...	0.15	...	3.94	1.00	0.46	13.90	1.16	0.15	...	0.23	0.15		
Westgate	0.06	...	0.13	...	2.94	1.00	0.70	17.65	1.15	0.51	0.06	0.32	0.26		
†Arthur's Hill	0.26	...	0.35	0.09	1.88	1.45	0.94	10.77	1.70	0.17	0.60	0.17	0.26		
Benwell	0.33	...	0.22	0.11	3.50	2.05	0.77	13.44	1.17	0.33	0.22	0.06	0.67		
Fenham	0.44	...	0.09	...	2.83	0.70	0.80	12.03	1.15	0.09	0.18	0.18	0.18		
All Saints'	0.06	0.06	...	...	1.65	0.50	0.55	10.81	1.38	0.39	0.11	0.28	0.33		
St. Andrew's	0.08	...	...	...	1.40	0.40	0.94	8.60	1.25	0.63	0.55	0.39	0.47		
Jesmond	0.35	...	0.09	...	1.86	1.59	0.35	12.81	1.24	0.27	...	...	0.18		
Dene	0.08	...	...	0.08	2.56	2.08	0.32	15.79	0.96	0.08	...	0.32	...		
Heaton	0.13	...	...	...	2.52	0.44	0.44	14.48	0.69	0.13	0.25	0.50	0.25		
Byker	0.06	...	0.11	...	3.07	0.73	1.30	13.90	0.73	0.44	0.50	0.06	0.39		
St. Lawrence	0.33	0.05	...	0.10	4.03	0.76	0.76	12.10	1.30	0.10	0.38	0.22	0.38		
St. Anthony's	0.56	0.06	...	0.06	1.86	0.87	0.80	8.17	0.25	...	0.44	0.12	0.37		
†Walker	0.49	...	0.18	0.12	2.80	0.60	0.73	11.30	0.79	0.24	0.24	0.30	0.67		
City	0.28	0.02	0.15	0.08	2.60	0.98	0.69	11.48	1.00	0.26	0.24	0.28	0.39		

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children. † Includes City Hospital for Infectious Diseases, Walker Gate. § During period compulsorily notifiable.

For particulars of **Tuberculosis** see table on page 100.

HOUSEHOLDS AFFECTED WITH INFECTIOUS DISEASES, EXCLUSIVE OF TUBERCULOSIS.

DISEASES.	HOUSEHOLDS WITH					Mili- tary or Naval Cases.	Public Institu- tions. *	TOTAL CASES.
	Single Cases.	2 Cases each.	3 Cases each.	4 Cases each.	5 Cases each.			
Typhus ... ..	...	...	...	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...
Scarlet Fever ..	449	68	22	2	1	32	32	728
Diphtheria (including Membranous Croup)	216	12	4	1	1	6	5	272
Enteric (or Typhoid) Fever	39	5	1	3	...	5	7	76
Puerperal Fever ...	15	...	...	...	...	...	7	22
Erysipelas	170	1	...	...	...	6	13	191
Epidemic Cerebro Spinal Meningitis...	18	...	...	...	...	20	5	43
Poliomyelitis... ..	5	...	...	...	...	...	...	5
Ophthalmia Neona- torum	68	...	...	...	...	...	4	72
Chicken Pox	227	17	5	1	...	...	...	280
TOTAL	1,207	103	32	7	2	69	73	1,689†

* See page 63.

† Exclusive of Measles and Rubella.

SCHOOLS AND INFECTIOUS DISEASES.—Through the courtesy of the Director of Education and of the Principal Medical Officer to the Education Committee, it has been possible to prepare the following statement, shewing the number of households affected with Scarlet Fever and Diphtheria per hundred scholars (calculated upon the average attendances).

SCARLET FEVER AND DIPHTHERIA IN SCHOOLS.

School.	Per cent. of Households infected with	
	Scarlet Fever.	Diphtheria.
Atkinson Road	0·8	0·6
Bath Lane	0·7	0·3
Bentinck	1·4	0·3
Blenheim Street ...	0·5	—
Bolam Street	1·9	0·7
Canning Street ...	0·5	0·2
Chillingham Road ...	1·6	0·7
Clarence Street ...	1·0	0·2
Cruddas Park	0·5	0·3
Diana Street	2·0	1·3
Delaval	0·9	0·5
Denton Road	1·7	0·5
Elswick Road	1·5	0·6
Heaton Park Road ...	1·3	0·2
Mitford Street	0·5	0·2
North Heaton	0·1	0·7
North View	1·7	0·4

SCARLET FEVER AND DIPHTHERIA IN SCHOOLS—(continued).

School.						Per cent. of Households infected with	
						Scarlet Fever	Diphtheria
Ouseburn	...	...	...	...	...	1·0	0·2
Raby Street	...	...	...	...	...	1·4	0·3
Royal Jubilee	...	...	...	...	...	0·9	—
Saint Peter's	...	...	...	...	...	1·0	0·2
Sandyford Road	...	...	...	...	...	1·4	0·2
Shieldfield	...	...	...	...	...	1·0	0·2
Snow Street	...	...	...	...	...	1·2	0·4
South Benwell	...	...	...	...	...	1·8	0·9
Spital Tongues	...	...	...	...	...	5·9	0·4
Todd's Nook	...	...	...	...	...	2·0	0·3
Victoria Jubilee	...	...	...	...	...	0·7	0·5
Walker East	...	...	...	...	...	0·6	0·1
Walker West	...	...	...	...	...	1·4	0·3
Walker Gate	...	...	...	...	...	1·5	0·4
Welbeck Road	...	...	...	...	...	1·1	0·7
Westgate Hill	...	...	...	...	...	1·1	0·6
West Jesmond	...	...	...	...	...	0·3	0·7
Westmorland Road	...	...	...	...	...	0·7	0·5
Wingrove	...	...	...	...	...	1·1	0·6

The Medical Officer of Health continues to inform principals of schools of the presence of infectious diseases in the homes of their pupils, as also of the cessation of infection. A daily return of cases in the homes of scholars is also forwarded to the Principal Medical Officer of the Education Committee.

Of the households infected with Scarlet Fever, 483 contained scholars of one or other of 72 different schools in the City. 20 of the largest elementary schools had scholars from upwards of 10 households each attacked during the year, the largest number of such households connected with any one school being 25.

In two schools there was infection in the households of the scholars during eleven months of the year, in two schools during ten months, and in two schools during nine months of the year.

School Closure.—No school nor department has been closed during the year on account of infectious disease. Mild scarlet fever has been present in the City, but no one school has suffered to any serious extent.

PUBLIC INSTITUTIONS AND INFECTIOUS DISEASE.

The following notifications were received during the year :—

INSTITUTIONS, &c.	Scarlet Fever.	Enteric Fever.	Diph- theria.	Ery- sipelas.	Puer- peral Fever.	Cerebro Spinal Menin- gitis.	Measles	TOTAL *
Royal Victoria Infirmary ...	10	3	1	2	7	4	...	27
Fleming Memorial Hospital, North Road... ..	7	1	3	...	...	1	5	17
School for the Blind ... ..	...	...	...	1	...	...	...	1
Workhouse	5	3	...	9	...	...	...	17
City Hospital for Infectious Diseases.. (Staff)	5	...	...	...	...	...	...	5
Throat and Ear Hospital ...	2	...	...	...	...	...	...	2
Deaf and Dumb Institution ...	1	...	...	...	...	...	...	1
Convent of Sacred Heart ...	2	...	1	1	...	...	...	4
Total	32	7	5	13	7	5	5	74

*Does not include any cases belonging to the City which could properly be assigned to their homes elsewhere.

MILK SUPPLY IN RELATION TO INFECTIOUS DISEASES.

The source of the milk supply was ascertained in every case of fever and diphtheria. In no case was there reason to suspect that the milk was responsible for the conveyance of infection.

There are in the City 737 small general shops in which milk is retailed, none of them being a fit place for the purpose, but there is no means of regulating them until the end of the suspension of the Milk and Dairies (Consolidation) Act, 1915.

Twenty-one cases of scarlet fever occurred at public places of various kinds, including four public houses, one social club, one nursing home, one salvation army home, one dentist and thirteen others. Thirteen cases of diphtheria occurred—four at public-houses, one at a commercial hotel, one at a dentist's, one at a chemist's, one at a tailor's, and four at other shops.

SCARLET FEVER.

Notifications of 728 cases were received during the year, being only about half the previous year's incidence, and there were 24 deaths, which is equivalent to a mortality of 3·3 per cent. The type of disease was mild on the whole.

DIPHTHERIA.

272 cases were notified during the year, and 28 died, a case mortality of 10·3 per cent.

Antitoxin was distributed free to medical practitioners in the City as follows :—

Number of medical practitioners who made application for							
Antitoxin	...	...	...	...	...	...	46
Number of phials of Antitoxin supplied				...	...	...	202
Number of cases of Diphtheria notified				...	...	...	272
Number of cases of Diphtheria removed to Hospital				...	...	...	242
Number of Hospital cases in which Antitoxin was injected				prior to admission			82
	

The fatality of the disease in recent years is shown in the subjoined table.

Year.	DIPHTHERIA CASES. (All Forms).	
	Number.	Case Mortality.
1909	546	12·7%
*1910	443	9·0%
1911	507	7·5%
1912	501	6·6%
1913	368	7·6%
1914	362	7·7%
1915	275	9·5%
1916	272	10·3%

* Antitoxin first distributed gratis April, 1910.

Particulars of the type of the disease as noted in cases sent to hospital will be found later in the section dealing with the City Hospitals.

A single case of diphtheria occurred in Moorside, Fenham, after a long period of freedom from the disease. The patient had recently been at a children's party in another part of the

town; accordingly all the other children who had been present were followed up and swabbed, and one carrier was found among them. He was isolated promptly and no further cases resulted.

MEASLES AND RUBELLA.

3,192 cases (including 133 of rubella) were notified, and there were 67 deaths from measles in 1916, representing a death rate of 0·24 per 1,000 population, as compared with 0·77 in 1915.

DEATHS FROM MEASLES, 1916.

MONTH.	YEARS OF AGE.							TOTAL.
	0-1.	1-2.	2-3.	3-4.	4-5.	5-10.	Over 10.	
January ...	1	2	1	...	...	...	...	4
February ...	1	...	1	1	...	1	...	4
March ...	1	4	1	...	2	...	...	8
April ...	2	1	...	1	...	1	...	5
May ...	2	4	...	...	...	...	...	6
June ...	6	7	2	...	...	...	...	15
July...	...	4	2	1	2	...	...	9
August ...	1	3	1	1	...	...	...	6
September ...	...	1	...	1	...	...	...	2
October ...	...	...	...	...	...	...	...	...
November ...	2	...	...	...	...	...	...	2
December ...	2	2	1	...	...	1	...	6
Total ...	18	28	9	5	4	3	...	67

Between the months of April and June one Health Visitor devoted her entire time to the visiting of measles cases, but since July each Health Visitor has visited the cases occurring in her district. This arrangement facilitates visiting at once, and the result has been that the children are better nursed and cared for, and the risk of complications is lessened.

Measles Cases Notified during 1916.—

			Civil.		Military.	
Medical Practitioners	...	...	2,524	...	42	
Parents, Guardians, etc.	...	...	284	...	...
Unnotified	...	...	209	...	...
			3,017		42	3,059

Rubella Notified.—

Medical Practitioners	...	...	124	...	9	133
TOTAL...	...	...		...		3,192

The cases occurred in the following wards :—

			Measles.			Rubella.
St. Nicholas'	...	...	16	...	...	3
St. Thomas'	...	...	134	...	...	18
St. John's	...	...	138	...	...	20
Stephenson	...	...	80	...	...	4
Armstrong	...	...	147	...	...	5
Elswick	...	...	173	...	...	7
Westgate	...	...	268	...	...	8
Arthur's Hill	...	...	123	...	...	3
Benwell	...	...	239	...	...	3
Fenham	...	...	131	...	...	5
All Saints	...	...	190	...	...	6
St. Andrew's	...	...	107	...	...	3
Jesmond	...	...	111	...	...	34
Dene	...	...	197	...	...	...
Heaton	...	...	227	...	...	3
Byker	...	...	247	...	...	2
St. Lawrence	...	...	221	...	...	1
St. Anthonys	...	...	131	...	...	1
Walker	...	...	179	...	...	7
			3,059 *			133 †

* 42 of these were Military cases.

† 9 were Military cases.

52 Military cases also occurred in camps and quarters outside Newcastle, and were sent in to the City Hospital, as were 16 of rubella, but none of these is included in the above.

Of the total number notified (3,192), 2,276 were visited from the Department, and 1,015 revisits were paid to the cases that required further supervision.

Housing Conditions.—256 or 11% occurred in 1 roomed dwellings; 952 or 42% occurred in 2 roomed dwellings; 691 or 30% occurred in 3 roomed dwellings, and 377 or 17% occurred in 4 roomed or larger dwellings.

The isolation of the children was found good in 507 or 22% cases, fair in 1,153 or 50%, and bad in 616 or 28%.

Medical Attendance.—In 85% of the cases visited a doctor was found to be in attendance.

Condition of Child.—Of the cases visited 1,908 cases or 83% were found to be progressing well; 235 or 12% were found suffering from bronchitis; 78 or 3% from pneumonia; and 55 or 3% died, as the result of complications following measles.

School.—883 children (visited) or 40% suffering from measles had previously been attending school, and in 532 cases or 23%, none from the house attended any school.

Ages.—The following are the ages of the children (visited) suffering from measles :—

Number under 1 year	...	...	250
„ 2 years	...	...	369
„ 3 years	...	...	294
„ 4 years	...	...	325
„ 5 years	...	...	314
„ 6 years	...	...	359
Number over 6 years	...	...	365

			2,276

WHOOPING COUGH.

78 deaths occurred from whooping cough. The particulars are as follows :—

MONTH.	YEARS OF AGE.						TOTAL.
	0-1.	1-2.	2-3.	3-4.	4-5.	5-10.	
January	2	1	...	...	...	...	3
February	4	6	2	...	...	...	12
March	5	4	3	2	...	...	14
April	2	4	1	...	1	...	8
May	5	6	1	1	...	...	13
June	6	8	2	...	1	...	17
July	2	...	...	1	...	...	3
August	1	...	...	...	...	1	2
September	1	1	...	...	1	...	3
October	1	...	...	...	1	...	2
November ... ..	...	...	...	...	...	...	...
December	1	...	...	...	...	...	1
Whole Year	30	30	9	4	4	1	78

The death rate in 1916 was equivalent to 0·28 per 1,000 population, as compared with 0·27 in 1915.

ENTERIC FEVER.

76 cases were notified during the year, and there were 10 deaths, giving a death rate of 0·04 per 1,000 population, and a case mortality of 13·2 per cent.

The 76 notified cases occurred as follows :—5 were military, 7 were in institutions, and 64 occurred in 48 private households,

of which 40 (55 cases) had water-closets, and eight (9 cases) had dry-closets. The attack rate was 1·06 cases per 1000 water-closet houses, and 1·69 cases per 1000 dry-closet houses. Ordinarily, as shown in previous years, the risk of acquiring enteric fever is at least three times as great for people living in dry-closet houses as for those with water-closets.

In 6 cases there was a history of the consumption of mussels at about the time when it was judged that infection was contracted. The shell-fish, usually eaten raw, was purchased at stalls in the Bigg Market. The original source of the mussels could not be traced.

More notable outbreaks.—Only one outbreak was notable as involving several households, viz.:—In August, when three other families were infected at a wedding festivity in a house in which there was a child suffering from unrecognised enteric fever. Three other members of the family were attacked (Peel Lane), four persons from a house in Pitt Street, one from Spring Street, and one in a small shop in Sunderland Street, frequented by the foregoing. Among these ten patients there were two deaths (Pitt Street and Sunderland Street).

Inoculation against Enteric Fever.—All members of the Medical and Nursing Staff at the City Hospital are inoculated against the *Bacillus Typhosus*, and the vaccine has been used to a limited extent in the treatment of special cases.

Of the three military cases admitted to hospital and proved to have enteric fever, two had been inoculated, and both of these recovered, while the remaining one (who had not been inoculated) died.

This low incidence among a very large number of troops under service conditions is consistent with the general experience both at home and in the expeditionary forces, and is quite without precedent in any previous mobilisation of the British army.

The almost complete absence of enteric fever in a huge fighting force is convincing evidence of the high degree of protection conferred by inoculation.

DIARRHŒA.

The summer and autumn of 1916 brought with it a rise in the incidence of diarrhœa.

There were in all 152 deaths from the disease, equal to a death rate of 0·55 per 1,000 population, and this number included 107 deaths of children under two years of age.

FOOD POISONING.

No definite cases of bacterial food poisoning, or "ptomaine" poisoning, came under notice during the year 1916 among the civil or military population.

TYPHUS.

No case of this disease occurred during the year.

SMALLPOX.

A number of more or less serious outbreaks of the disease occurred in various parts of the country during the spring and summer of the year, and several cases were reported at South Shields, and one at Willington, County Durham.

There were numerous contacts with the former among munition workers at the Elswick Works, Scotswood, and on the advice of the Medical Officer of Health, twenty-six were excluded from the factory pending their successful vaccination. The Willington case was the keeper of an eating-house much used by tramps, and had travelled by train with the rash fully out on her.

No further cases resulted from the Willington patient, and none in Newcastle from the South Shields cases. One girl was sent to the Smallpox Hospital for observation as a suspect, and four of her immediate associates were quarantined for a fortnight in the Isolation Hospital. All were satisfactorily vaccinated.

Compensation for loss of work during quarantine at home or in hospital was paid to twelve Newcastle residents.

Many suspicious cases were visited in consultation with private medical practitioners.

The following are the particulars, courteously furnished by the Clerk to the Guardians, of infant **Vaccination** in Newcastle during recent years. (Walker, which belongs to the Tynemouth Rural area for registration purposes, is not included).

Year.	Births Registered.	Successful Vaccinations.	Unsuccessful Vaccinations.	Exemption Certificates	
				Number.	Percentage to Total Births.
1905	7,958	7,264	27	65	0·8
1906	7,721	6,733	28	92	1·2
1907	7,610	6,702	16	94	1·2
*1908	7,747	6,414	20	449	5·8
1909	7,180	5,667	30	517	7·2
1910	7,023	5,532	22	683	9·7
1911	6,604	5,002	24	767	11·6
1912	6,715	4,625	18	982	14·6
1913	6,874	4,441	7	1,173	17·0
1914	7,023	4,230	11	1,499	21·2
1915	7,116	4,487	11	1,485	20·9
1916	7,117	4,405	9	1,509	21·2

* Vaccination Act, 1907, came into force.

The *Public Vaccinators and Vaccination Officers* for the various districts of the City are :—

Dene, Heaton and Byker Municipal Wards :—

Dr. FRANK RUSSELL, 41, Heaton Road.

Deputy—Dr. GEO. DUNCAN, Heaton Park Road.

St. Anthony's and St. Lawrence Municipal Wards :—

Dr. RICHARD DAGGER, 1, Rothbury Terrace.

Deputy—Dr. L. S. DAVISON, 19, Heaton Road.

Walker District :—

Dr. J. R. MITCHELL, Welbeck Road.

Deputy—Dr. W. T. HALL, 12, Heaton Road.

East Central :—

Dr. FRANK HAWTHORN, 10, Ellison Place.

Deputy—Dr. O. W. OGDEN, 38, Jesmond Road.

West Central :—

Dr. JAMES DON, 1, Grove Street.

Deputy—Dr. JAS. HUDSON, 42, Crossley Terrace.

Western district :—

Dr. G. D. NEWTON, 2, Ellison Place.

Deputy—Dr. H. E. FELLOWES, Addison Street, Heaton.

Poor Law Infirmary :—

Dr. G. P. HARLAN.

Vaccination Officers :—

Western—WM. YOUNG, 14, Normanton Terrace.

Eastern—WM. GARRETT, 34, Harbottle Street.

CHICKENPOX.

Owing to the occurrence of cases of smallpox in the district, chickenpox was made compulsorily notifiable from July 4th to October 28th, and 280 cases of that disease were reported. Many of them were visited personally by the Medical Officer of Health.

ERYSIPELAS.

191 cases of this disease were notified, and there were 6 deaths.

PUERPERAL SEPTICÆMIA.

Inquiries were made concerning 15 cases in private households, 10 of which were attended in some form or other by certified midwives or uncertified handy women.

ANTHRAX, AND SHAVING BRUSHES.

On 18th August, information was received from the Local Government Board that a case of anthrax had occurred in Sheffield, and that the infection was attributed to a cheap shaving brush imported from Japan by a firm in London. Bacteriological examination in Sheffield, and also in Bolton, of brushes from the same consignment revealed the presence of organisms having the appearance of typical anthrax. It was further stated that numbers of similar brushes had been sent to a firm in Newcastle.

On receipt of this information, inquiry was set on foot in Newcastle. It was found that the firm referred to—which deals in cheap goods—had received some 7,200 brushes. Numbers of these had already been sent out to the various branches of the firm in Northumberland and Durham. The stock on the premises, including that called in from branches in Newcastle and Gateshead, and amounting to about 40 gross, was seized. It was found impossible to sterilize the brushes, and they were therefore destroyed. Warning was sent to the Medical Officers of Health of the surrounding districts where the firm had branches, and all took prompt action in the matter. As was to be expected, some of the brushes had already been sold, but publicity was given to the

affair in the newspapers, and a few of them were traced. Many, however, were not heard of again.

Several brushes were taken from different packages in different parts of the consignment for bacteriological examination, and from these bacilli were readily obtained, which were verified as anthrax, both culturally and by inoculation into guineapigs, in which the fatal result occurred very speedily. The following was the result of the efforts to trace the brushes :—

Number seized	...	...	...	...	6,701
„ sold	...	...	...	...	246
Balance not accounted for	...	...	...	...	253
					<hr/>
					7,200
					<hr/>

VENEREAL DISEASES.

Syphilis was stated as the cause of death in 18 cases. No deaths were assigned to “other venereal diseases.”

During the latter part of the year several conferences were held with representatives of the County and County Borough Authorities of Northumberland and Durham, with a view to the formation of a joint scheme for diagnosis and treatment of venereal diseases, and the following was evolved and agreed upon for putting into operation on 1st January, 1917.

JOINT SCHEME FOR CONTROL OF VENEREAL DISEASE.

*Adopted for recommendation to their respective
Authorities by a Joint Committee of Representatives
of County Councils and County Borough Councils
in Northumberland and Durham.*

Bacteriological Diagnosis:—

- (a) Each Local Authority making an arrangement with the Durham University College of Medicine for the examination of blood (Wassermann reaction) and other material from cases of venereal disease to pay at the following rates:—

(1) Microscopic examination for spirochaetes or gonococci - - - 3/6 per specimen.

(2) Wassermann reaction:—

20 or more samples per week from all sources,

5/- per sample.

17 to 19	do.	do.	£4	17	6
13 to 16	do.	do.	4	14	6
9 to 12	do.	do.	4	10	0
5 to 8	do.	do.	4	4	0
3 or 4	do.	do.	3	3	0
1 or 2	do.	do.	2	2	0

- (b) Each Local Authority itself to provide, to an approved pattern, the necessary outfits for collection and transmission of pathological material from its own district, and, if it so desires, to control and distribute, through the College of Medicine, such outfits. The Local Authority also to be responsible for postage and necessary stationery.
- (c) Specimens collected at and forwarded from the clinic to be charged to the Local Authority to whose area the patients from whom they are taken belong.

- (d) All examinations to be made by a skilled pathologist having special experience of the work in question.
- (e) The contracting Authorities to guarantee a continuance of contract with the College of Medicine for a minimum period of 5 years, subject to alteration by mutual consent or by arbitration.

Treatment :—

- (a) Clinics or treatment centres to be established at the Royal Victoria Infirmary, Newcastle, and at such of the following as are in a position to undertake the necessary work :—Darlington Hospital and Dispensary ; Durham County Hospital ; Cameron Hospital, West Hartlepool ; Hartlepoons Hospital ; Knight Memorial Hospital, Blyth ; Berwick - on - Tweed Borough Hospital ; Ingham Infirmary, South Shields ; Stockton and Thornaby Hospital ; Ashington New Hospital ; and Sunderland Royal Infirmary. The clinic in each case to be in connection with existing out-patient or skin out-patient departments.
- (b) Each clinic to serve primarily the Local Authorities from whose areas it is most conveniently accessible, but without prejudice to the condition that treatment must be accorded all comers, irrespective of their place of domicile and means, and made available at such hours as shall best suit the needs of the population to be served. If a patient who is able to pay for his own treatment presents himself at a clinic, the Medical Officer should advise him to consult a private practitioner, but if the patient is unwilling to obtain treatment in this way, there should be no refusal to treat him at the institution.
- (c) Each contracting hospital to set aside or provide such number of beds as may be agreed on by the contracting parties (subject to the approval of the Local Government Board) for the accommodation of patients requiring temporary supervision or in-treatment.

- (d) The clinic or centre at each contracting hospital to be under the direct control and supervision of a Specialist Medical Officer having special experience and knowledge of venereal diseases, with such assistance and staff as may be necessary. Where possible, there should be a female medical assistant.
- (e) Drugs and remedies to be provided for the treatment of patients using the clinic, and salvarsan or its approved substitutes for patients, attended otherwise, on whose behalf their medical adviser may make application, so far as the Specialist Medical Officer shall consider that the practitioners comply with the conditions as to knowledge and experience suggested by the Local Government Board in their Memorandum of August 29th, 1916.
- (f) Microscopic examinations of material from patients attending the clinic may, for his own convenience, be made by the Specialist Medical Officer or a competent medical assistant at the clinic, but no separate charge to be made for this.
- (g) The Specialist Medical Officer, or a competent medical assistant, to advise practitioners on request, without charge, regarding their patients, meeting them in consultation when necessary at the clinic to which he is attached, and to assist them by demonstrating methods of taking specimens for bacteriological examination and in the administration of treatment.
- (h) The name and address of each attending patient to be noted in a register when he first presents himself at the clinic, this information to be kept strictly private and used for reference only. The patient to receive a card with a number by which alone he is to be known in the clinic.
- (i) While strict secrecy regarding the identity of patients is to be preserved, the Specialist Medical Officer to give every encouragement to medical practitioners

and medical students to attend the clinic in order to familiarise themselves with all the aspects of venereal disease and the most modern methods of treatment.

- (j) Such records of work to be kept at the clinic as are specified in the Regulations of the Local Government Board.
- (k) All subsequent *internal* arrangements to be made by the respective contracting hospitals.
- (l) Careful note to be kept by each contracting hospital of the total cost of the clinic and its various activities, excluding the cost of the special beds hereafter referred to, but including apparatus, salaries and wages, stationery and office expenses, heating and lighting, laundry work and cleaning. This to be defrayed by the Local Authorities from whose areas patients have come for treatment, in proportion to the number of attendances from each. The expenditure on the more expensive drugs, such as salvarsan and its approved substitutes, in each case to be taken out separately, and debited to the Local Authority of the district in which the patient is domiciled.

The cost of the special beds to be kept separately, or, if this is impracticable, to be charged in proportion to the cost of the whole of the beds of the Institution (including all maintenance, repairs, etc., and other running charges), and the amount to be apportioned for payment among the various Local Authorities according to the number of patient-days assignable to each. In the case of the Royal Victoria Infirmary an additional annual sum not exceeding £80 to be paid as an acknowledgment of the use of the Administrative and Out-patient Department buildings.

As rent, the user Authorities to contribute to each institution, over a term of 20 years, annual amounts sufficient in total to cover any capital outlay incurred by the institution in connection with the Scheme,

together with interest at the rate of 5 per cent. per annum on the diminishing capital amount; the sum payable by each Authority in each year to be proportionate to the number of patient-days debitable to its area for the year.

At the end of the period referred to, such payments, being in the nature of a capital charge, to be discontinued. Further payments to be in respect only of actual maintenance, running costs, etc., and may be in the form of a fixed annual payment.

The contracting Authorities to guarantee a continuance of contract with their respective hospitals for a minimum period of 20 years, where new buildings have to be erected, and 5 years where no new buildings have been necessary, subject to alteration by mutual consent or by arbitration.

- (m) Travelling expenses to be allowed, on request, to necessitous cases attending the clinic or centre primarily intended to serve the area in which the patient is domiciled. Patients electing to attend clinics outside their area to do so at their own cost. The payment to be made on application to the County or County Borough Medical Officer of Health, who is to satisfy himself that the case is an exceptional one, and that the patient would be unable, without such assistance, to obtain the necessary expert advice or treatment.

Educational and Publicity Campaign:—

This to be conducted independently in each area by the Local Authority through its Medical Officer of Health.

28th November, 1916.

CITY HOSPITAL FOR INFECTIOUS DISEASES.
Accommodation.

NAME AND SITUATION OF HOSPITAL.	TOTAL AVAILABLE BEDS.
City Hospital for Infectious Diseases, Walker Gate (including Phthisis Pavilions, 62 Beds) ...	294
Smallpox and Isolation Hospitals, Town Moor ...	172

YEAR.	Population of the City.	Number of Beds at City Hospital for Fever Cases.	Total Admissions (Scarlet Fever, Diphtheria, Enteric Fever, Typhus, and Continued Fever, and Cerebro-Spinal Fever).	Percentage of Notified Cases Admitted.
1890	182,866	104	219	21·3
1900	213,039	104	290	33·3
1909	263,064	172	1,090	78·0
1910	265,077	172	912	83·0
1911	267,261	172	1,110	83·1
1912	269,193	172	1,542	86·4
1913	271,295	172	1,286	88·3
1914	271,523	172	1,835	78·9
1915	278,107	232	1,886	90·5
1916	278,107	232	1,380	87·0

CITY HOSPITAL, WALKER GATE.
(Fever Pavilions).

Admissions during the year—1,380.

The average daily number of patients in the hospitals was 135, exclusive of 22 cases of phthisis.

RATE PER CENT. OF CASES REMOVED TO HOSPITAL TO CASES NOTIFIED.

	1890	1895	1900	1905	1910	1911	1912	1913	1914	1915	1916
Scarlet Fever	18·4	33·0	35·0	50·1	84·5	83·8	88·0	90·6	81·4	91·3	94·5
Diphtheria	8·3	28·7	40·0	36·8	80·1	80·5	81·8	81·5	84·8	89·1	84·6
Enteric Fever	38·9	48·0	54·5	52·0	90·5	92·0	91·2	91·1	94·1	87·0	96·6
All cases of the above together with Continued and Typhus Fever, and Cerebro-Spinal Fever	21·3	34·6	38·6	47·8	83·0	83·1	86·4	88·3	82·6	90·5	87·0

Diseases and Mortality Rates.

MORTALITY OF CASES TREATED IN HOSPITAL AS COMPARED WITH CASES NOT REMOVED DURING 1916.

DISEASE.	HOSPITAL.			NOT REMOVED		
	Total Cases (Verified).	Deaths.	Case Mortality per cent.	Total Cases (Notified).	Deaths.	Case Mortality per cent.
Scarlet Fever ...	677	19	2·8	51	5	9·8
Diphtheria	210	23	10·95	62	5	8·0
Enteric Fever ...	57	8	14·03	19	2	10·5

Expenses of Maintenance.—Of the patients admitted, the expense of maintenance is charged as under :—

To the Newcastle Sanitary Authority	Cases.
To private guarantors	980
To the War Office	5
	395
TOTAL	1,380

Diseases Admitted.

CASES SENT IN AS:—		CASES ADMITTED PROVED AFTER OBSERVATION TO BE:																															
	Number.	Scarlet Fever and Contacts.	Diphtheria Carriers & Contacts	Enteric Fever Carriers & Contacts	Paratyphoid Fever	Dysentery.	Ruptured Gastric Ulcer.	Other Intestinal Diseases.	Measles and Contacts.	Rubella and Contacts.	Cerebro-Spinal Fever Carriers and Contacts.	Tuberculous Meningitis.	Meningitis. Other Forms.	Other Diseases of the Nervous System	Puerperal Septicæmia.	Other Septic Conditions.	Erysipelas.	Non-Infectious Skin Eruptions.	Scabies.	Vaccinia.	Smallpox Contacts.	Vincent's Angina.	Other Throat Affections.	Pneumonia.	Pericarditis.	Ulcerative Endocarditis.	Influenza.	Rheumatism.	Mumps.	Syphilis.	Gonorrhœa.	Indefinite.	
Scarlet Fever & Contacts.	713	676	2	...	...	...	...	2	...	5	...	...	...	...	...	...	...	...	14	...	...	...	10	1	...	...	...	1	...	...	...	...	2
Diphtheria & Contacts ...	246	621	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	3	...	1	24	2	...	...	...	...	...	...	...	1	...
Enteric Fever & Contacts.	114	...	...	85	1	1	1	1	...	...	2	1	...	1	1	2	...	...	...	...	...	...	...	2	1	1	3	...	...	...	1	1	...
Cerebro-Spinal Meningitis, Carriers, and Contacts ...	137	...	1	...	...	...	...	...	1	...	108	3	2	2	...	...	...	...	1	...	4	...	...	1	3	...	...	3	3	...	...	...	5
Tuberculous Meningitis...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Measles & Contacts	127	2	...	...	...	...	...	...	16	106	...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Mumps ...	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	12	...	...	...
Typhus ...	3	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Paratyphoid	3	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Erysipelas	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	9	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Suspicious Smallpox & Contacts	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	4	...	...	...	...	1	...	...	...	...	...	...
Scabies ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Dysentery	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
TOTALS	1380	685	214	86	2	1	1	3	17	111	110	4	2	4	1	4	10	22	1	5	4	1	35	8	1	1	8	4	12	2	1	20	

1916.
Monthly Admissions.

DISEASES.	ADMISSIONS.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Scarlet Fever and Contacts .	74	51	65	48	69	57	71	59	65	41	56	29	685
Diphtheria Carriers and Contacts .	13	14	15	27	11	9	16	23	19	17	15	35	214
Enteric Fever Carriers and Contacts .	16	2	7	2	8	2	2	10	5	28	3	1	86
Paratyphoid Fever.	...	...	1	...	...	...	...	...	...	1	...	...	2
Dysentery .	...	...	...	...	...	...	...	...	...	1	...	...	1
Ruptured Gastric Ulcer .	...	...	...	...	1	...	...	...	...	...	...	...	1
Other Intestinal Diseases .	...	...	1	...	...	...	...	...	...	2	...	...	3
Measles & Contacts	...	2	5	2	1	1	1	1	1	...	...	3	17
Rubella & Contacts	4	20	16	30	19	12	5	3	2	...	...	...	111
Cerebro-Spinal Fever, Carriers and Contacts .	2	1	25	24	14	18	7	8	3	2	1	5	110
Tuberculous Meningitis .	...	1	...	1	1	...	1	...	...	...	...	...	4
Meningitis, other Forms .	...	...	1	...	...	...	...	1	...	...	...	...	2
Other Diseases of the Nervous System .	...	...	...	1	...	...	...	...	...	1	1	1	4
Puerperal Septicæmia .	...	...	1	...	...	...	...	...	...	...	...	...	1
Other Septic Conditions .	...	...	1	...	1	1	...	1	...	...	...	...	4
Erysipelas .	...	1	1	...	1	2	2	...	2	...	...	1	10
Non-Infectious Skin Eruptions .	...	2	1	3	1	...	4	1	1	6	1	2	22
Scabies .	...	...	...	...	...	1	...	...	...	...	...	...	1
Vaccinia .	...	...	...	...	3	1	1	...	...	...	...	...	5
Smallpox Contacts.	...	...	...	4	...	...	...	...	...	...	...	...	4
Vincent's Angina .	...	...	...	...	...	1	...	...	...	...	...	...	1
Other Throat Affections .	6	...	2	4	4	6	...	1	5	3	2	2	35
Pneumonia .	1	...	1	1	...	1	1	1	...	...	...	2	8
Pericarditis .	...	...	...	...	...	...	1	...	...	...	...	...	1
Ulcerative Endocarditis .	...	...	...	...	...	...	...	...	...	1	...	...	1
Influenza .	...	1	2	1	1	2	...	...	...	1	...	...	8
Rheumatism .	1	...	...	1	...	...	...	...	...	1	1	...	4
Mumps .	2	1	1	6	...	1	...	1	...	...	...	...	12
Syphilis .	...	...	...	...	...	...	...	1	1	...	...	...	2
Gonorrhœa .	...	...	...	...	...	...	...	...	...	1	...	...	1
Indefinite .	1	...	1	...	2	...	1	2	4	3	2	4	20
TOTALS .	120	96	147	155	137	115	113	113	108	109	82	85	1,380

CITY HOSPITAL STAFF.—The above figures include 4 cases of Scarlet Fever and 1 of Diphtheria amongst the Nurses.

1916.
Monthly Deaths.

DISEASES.	DEATHS OF CASES ADMITTED IN.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Scarlet Fever and Contacts .	4	1	2	1	3	...	1	2	2	...	1	2	19
Diphtheria Carriers and Contacts .	1	1	...	2	1	...	2	5	...	4	6	1	23
Enteric Fever, Carriers and Contacts .	3	...	...	1	1	...	...	1	1	...	...	1	8
Paratyphoid Fever, Dysentery
Ruptured Gastric Ulcer
Other Intestinal Diseases
Measles & Contacts
Rubella & Contacts
Cerebro-Spinal Fever, Carriers and Contacts .	1	1	2	4	4	5	...	1	1	...	1	2	22
Tuberculous Meningitis	1	...	1	1	...	...	...	...	...	...	...	3
Meningitis, other Forms	1	...	...	...	...	1	...	...	...	...	2
Other Diseases of the Nervous System
Puerperal Septicæmia	1	...	...	...	...	...	...	...	...	...	1
Other Septic Conditions	1	...	...	...	...	...	...	...	...	...	1
Erysipelas
Non-Infectious Skin Eruptions
Scabies
Vaccinia
Smallpox Contacts
Vincent's Angina
Other Throat Affections
Pneumonia .	1	...	...	1	...	...	...	...	...	...	...	...	2
Pericarditis
Ulcerative Endocarditis	1	...	...	1
Influenza
Rheumatism
Mumps
Syphilis
Gonorrhœa
Indefinite	1	1
TOTALS .	10	4	7	10	10	5	3	10	4	5	8	7	83

NOTE.—The deaths given above for each month refer to patients admitted during that month only, and have no reference to the actual number of deaths in that month.

Length of stay in Hospital of fatal cases.—Of the foregoing, the following *died within 24 hours of admission*—Diphtheria 4, Cerebro-Spinal Fever 5, Septicæmia 1, Streptococcal Meningitis 1.—Total 11.

The average time in hospital of the fatal cases was—Scarlet Fever 12 days, Diphtheria 9 days, Enteric Fever 13 days, and Cerebro-Spinal Fever 27 days.

The following are the particulars of the *Naval and Military Cases* (included in the foregoing large tables) :—

NAVAL AND MILITARY CASES ADMITTED.

Disease for which admitted.	Cases.	Deaths.
Scarlet Fever and Contacts ...	57	1
Diphtheria and Contacts ...	30	...
Mumps	14	...
Measles and Contacts... ..	121	...
Enteric Fever and Contacts ...	39	3
Paratyphoid	3	...
Dysentery	1	...
Cerebro-Spinal Fever Car- riers and Contacts }	116	16
Erysipelas	12	...
Suspicious Smallpox	1	...
Scabies	1	...
TOTAL	395	20

The above deaths refer to the actual cases admitted during the year, whether the deaths occurred within the same period or not.

**Present Death Rates compared with those
of 20 years ago—**

RETURN SHEWING THE NUMBER OF CASES OF
SCARLET FEVER, DIPHTHERIA, AND ENTERIC FEVER ADMITTED TO HOSPITAL,
AND MORTALITY RATES PER CENT.
1892-1896.

YEAR.	NUMBER OF CASES ADMITTED TO HOSPITAL.			NUMBER OF DEATHS.			CASE MORTALITY, PER CENT.		
	Scarlet Fever.	Diph- theria.	Enteric Fever.	Scarlet Fever.	Diph- theria.	Enteric Fever.	Scarlet Fever.	Diph- theria.	Enteric Fever.
1892	244	18	26	8	5	5	3·3	27·8	19·2
1893	202	15	49	5	2	6	2·5	13·3	12·2
1894	230	8	60	6	3	13	2·6	37·5	21·7
1895	319	41	75	10	10	21	3·1	24·4	28·0
1896	293	23	63	7	...	14	2·4	...	22·2
	1,288	105	273	36	20	59	2·8	20·6	20·7
1912-1916.									
1912	1,018	383	82	34	27	13	3·3	7·0	15·8
1913	853	254	109	21	22	12	2·5	8·7	11·0
1914	1,404	251	86	43	21	13	3·1	8·4	15·1
1915	1,305	223	88	37	18	10	2·8	8·0	11·4
1916	677	210	57	19	23	8	2·8	10·9	14·0
	5,257	1,321	422	154	111	56	2·9	8·6	13·4

CEREBRO-SPINAL FEVER.

61 cases of Cerebro-Spinal Fever were admitted during the year. 48 were military or naval cases, and of these 16 died, equivalent to a mortality rate of 33 per cent. Of the 13 remaining civil cases 9 or 69 per cent., were fatal. The serious disparity between the two classes of case is accounted for by the fact that the service cases are generally recognised at a much earlier stage than civil cases. In the latter a doctor is usually called in too late.

It is gratifying to record that in November a letter was received conveying the recognition of the General Officer Commanding-in-Chief Northern Command of the special risks which Miss Laura Willans, Sister in charge of the Cerebro-Spinal Fever wards since the beginning of the War, had run in connection with this work through so many months of nursing, and expressing his warm appreciation of her excellent work for the Army, and of her devotion to duty.

Sister Willans was subsequently awarded the Royal Red Cross Decoration of the Second Class, although not a member of any military nursing organisation.

Diphtheria.—*Cases in Hospital.*—Of the 210 patients in Hospital, 179 were faucial, pharyngeal, or nasal cases, and of these 16, or 8·9 per cent., died. 31 were also laryngeal or tracheal, and of these 7, or 22·6 per cent., died. Tracheotomy was performed on 8 patients, of whom 3, or 37·5 per cent., died. It is of interest to note that of 18 cases in which the nasal passages were involved 11 died, a case mortality of 61·1 per cent.

Of the 23 deaths, 4 were of patients practically moribund on admission, who died within 24 hours.

As hitherto, the patients sent to Hospital, generally speaking, came from much less favourable surroundings than those treated at home, and suffered from a severer type of the disease.

Antitoxin is administered to all cases of Diphtheria admitted to Hospital which have not received the remedy at home. Owing to the free supply of Antitoxin to private medical practitioners, patients receive the treatment earlier than previously.

Bacteriological diagnosis is made in the great majority of cases before admission.

Mixed Infection.—58 patients sent into Hospital, or 4·2 per cent., were found on admission to be suffering from two or more distinct infectious diseases, as follows:—

Scarlet Fever and Diphtheria	...	...	...	5
Scarlet Fever and Morbilli	...	...	...	5
Scarlet Fever and Scabies	...	...	...	8
Scarlet Fever and Pertussis...	...	...	...	3
Scarlet Fever and Gonorrhœa	...	...	...	2
Scarlet Fever and Varicella...	...	...	...	5
Scarlet Fever and Tuberculosis	...	...	...	5
Scarlet Fever and Ringworm	...	...	...	5
Scarlet Fever and Impetigo	...	...	...	1
Cerebro-Spinal Fever and Gonorrhœa	...	...	...	1
Cerebro-Spinal Fever Contact and Tonsillitis	...	...	...	2
Diphtheria and Scarlet Fever	...	...	...	3
Diphtheria and Varicella	...	...	...	1
Diphtheria and Morbilli	...	...	...	2
Diphtheria and Scabies	...	...	...	1
Diphtheria and Pertussis	...	...	...	1
Diphtheria and Searlet Fever and Scabies	...	...	...	1
Enteric Fever and Tuberculous Meningitis	...	...	...	1
Enteric Fever and Scabies	...	...	...	1
Enteric Contact and Syphilis	...	...	...	1
Mumps and Rubella	...	...	...	1
Mumps and Furunculosis	...	...	...	1
Furunculosis and Scabies	...	...	...	1
Rubella and Sycosis	...	...	...	1

Thus, 5·8 per cent. of the cases of scarlet fever, on admission, suffered from another infectious condition as well, and 4·3 per cent. of the cases of diphtheria.

Deaths from Concurrent Affections.—Out of the total number of deaths from all causes in hospital (83), 11, or 13·3 per cent., were of patients suffering from a concurrent affection directly or partially causative of the fatal termination. These were as follows:—

DEATHS FROM CONCURRENT AFFECTIONS,

Enteric Fever and Tuberculous Meningitis	...	...	1
Scarlet Fever and Congenital Syphilis	...	...	1
Diphtheria and Scarlet Fever	...	...	2
Diphtheria and Pertussis	...	...	1
Diphtheria and Pneumonia	...	...	3
Diphtheria and Morbilli	...	...	1
Cerebro-Spinal Fever and Gonorrhœa	...	...	1
Scarlet Fever and Broncho Pneumonia	...	...	1

Gross Infection.—During the year under report, 31 patients developed a second infection in the wards; of these 5 were incubating the second disease on admission, the remaining 26, or 1·88 per cent. of all cases admitted, acquiring the second infection in hospital, many of them from the incubating cases admitted.

Strong efforts were made to deal with all such cases by means of the “barrier” system of “bed isolation,” a method, however, which depends for success entirely upon the personal element, and requires the most rigorous and laborious observances of minutiae of regime.

Particulars of cases are shown in the following table:—

CROSS INFECTIONS.

Sent in as	Developed.	Number of Cases.	Number Infected in Hospital.
Scarlet Fever	Scarlet Fever	3	3
Cerebro-Spinal Fever	Varicella	1	1
Scarlet Fever	Morbilli	3	2
Scarlet Fever	Varicella	7	7
Mumps	Rubella	1	...
Mumps	Erysipelas	2	2
Diphtheria	Scarlet Fever	12	11
Diphtheria	Morbilli	1	...
Diphtheria	Varicella	1	...
TOTAL		31	26

Of 705 cases sent in as scarlet fever, 1, or 0·14 per cent., was incubating a second disease, and 12, or 1·7 per cent., were infected in hospital. Of these 12, 3 (or 0·42 per cent. of all cases sent in as scarlet fever) were diagnosed by the private practitioner as mild cases of that disease on the strength of symptoms stated to have disappeared before removal of the patient.

Of 242 cases sent in as diphtheria, 3, or 1·24 per cent., were incubating a second disease, and 11, or 4·54 per cent., were infected in hospital.

“Return” Cases.—The following are details of the “return” cases during the year:—

“RETURN” CASES OF SCARLET FEVER, 1916.

SCARLET FEVER.	“Infecting” Cases.		“Return” Cases.		“Infecting” Cases.
Total Admissions.	No.	Per-centage.	No.	Per-centage.	Average Day of Disease when Discharged.
677	22	3·3	24	3·5	48·8

SEASONAL OCCURRENCE.

Quarter.	Total Scarlet Fever Admissions.	“Infecting” Cases.		“Return” Cases.	
		No.	Percentage.	No.	Percentage.
January to March ...	189	7	3·7	8	4·2
April to June ...	172	4	2·3	4	2·3
July to September ...	194	5	2·6	5	2·6
October to December ...	122	6	4·9	7	5·7

Of the 22 “infecting” cases 13 remained “clean,” *i.e.* free from any apparent infective condition such as sores or discharges. 5 developed nasal discharge after reaching home, 2 nasal discharge and septic sores, and 2 septic sores. In the 13 “clean” cases, the period before onset of illness of the second or “return” case after discharge from Hospital of

the supposed "infecting" case averaged 10 days, and in the "dirty" cases 15 days.

The "clean" cases had been discharged from hospital on the (average) 44th day of disease, and the "dirty" cases on the (average) 56th day.

"RETURN" CASES FOR YEARS 1906-1916.

Year.	Total Scarlet Fever Admitted.	"Infecting" Cases.		"Return" Cases.	
		No.	Percentage.	No.	Percentage.
1906	442	7	1·6	10	2·3
1907	390	11	2·8	17	4·4
1908	283	4	1·4	5	1·8
1909	623	23	3·7	30	4·8
1910	465	18	3·9	20	4·3
1911	605	26	4·3	30	4·9
1912	1,018	47	4·6	52	5·1
1913	853	23	2·7	24	2·8
1914	1,404	78	5·6	96	6·8
1915	1,305	43	3·3	49	3·7
1916	677	22	3·3	24	3·5

Hospital and Home "Isolation" Compared.

In order to determine the relative liability to further infection subsequent to the first, in hospital- and home-isolating households respectively, a careful record has been kept for four years of the number of presumably susceptible persons in each invaded house, all, other than the original patient, below 12 years of age being so classed, and the proportionate incidence of secondary cases calculated.

Cases occurring within seven days of the "isolation" of the original case were not counted, as these probably acquired their infection before the influence of the "isolation" could be felt.

Cases occurring subsequently to the seventh day of "isolation" of the original case, and prior to the release of the latter, were classed as "incidental" infections.

Cases occurring within 28 days after the release of the original case from "isolation" were classed as "return" infections.

The following table shows the results obtained :—

YEAR	1913.		1914.		1915.		1916.		4 Years.	
Patient "isolated" at	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home
"Susceptibles" in the homes of each class of patient	1131	53	1708	244	1462	86	800	8	5101	381
"Incidental" infections	69	3	78	28	85	7	33	2	265	40
Percentage of "incidentals" to "susceptibles"	6·1	5·7	4·6	11·5	5·8	8·1	4·1	25·0	5·2	10·5
"Return" Infections	29	...	84	...	55	2	21	1	189	3
Percentage of "returns" to "susceptibles"	2·6	...	4·9	...	3·8	2·3	2·6	12·5	3·7	0·8
Total of "incidental" and "return" infections	98	3	162	28	140	9	54	3	454	43
Percentage of this total to "susceptibles"	8·7	5·7	9·5	11·5	9·6	10·5	6·7	37·5	8·9	11·3

Thus it is seen, on four years working, that there are fewer secondary cases in the households which send their first case to hospital. This difference is the more marked when one analyses the relative housing accommodation of the two classes. Thus for every "susceptible" remaining at home among the hospital-isolating class, there were on an average at least 2·1 rooms, whereas in the home-isolating class there was an average of at least 4·6 rooms for each "susceptible," the home class having therefore more than twice the accommodation of the others, and being in fact selected on that account. If, therefore, home isolation were as efficient, case for case, as hospital, one would have expected to find a great preponderance in favour of the home class in the above evidence, instead of which the result is entirely the other way.

Average stay in Hospital during the last ten years.

Year.	All Cases.		Scarlet Fever.		Diphtheria.		Enteric Fever.		Other Diseases.	
	No.	Average Stay in Days.	No.	Average Stay in Days.	No.	Average Stay in Days.	No.	Average Stay in Days.	No.	Average Stay in Days.
1907	647	52·4	390	59·7	177	42·4	35	39·9	46	39·2
1908	614	48·4	283	56·3	220	40·0	88	48·5	25	31·8
1909	1,090	49·2	623	54·3	334	41·6	56	45·9	78	42·8
1910	912	44·4	465	51·3	317	37·2	47	46·4	83	32·5
1911	1,110	45·6	605	50·5	375	41·9	68	44·4	62	20·2
1912	1,542	45·8	1,018	46·1	383	45·7	82	46·2	59	20·9
1913	1,286	45·5	853	47·6	254	47·9	109	43·4	70	19·6
1914	1,835	41·6	1,404	44·4	251	34·4	86	41·2	94	20·2
1915	1,886	41·3	1,305	47·1	223	35·6	88	44·0	271	17·2
1916	1,380	35·7	677	42·5	210	38·2	57	48·8	436	22·3

Bacteriological Laboratory, City Hospital.

The following examinations were made in connection with the patients in the fever wards:—

Swabs for Diphtheria germs ...	...	...	857
Cerebro-Spinal Fluid, for Meningococci and Cells ...	...	...	13
Sputum, for Tubercle Bacilli...	...	...	363
Swab for Thrush ...	...	...	1
TOTAL ...			1234

SMALLPOX AND ISOLATION HOSPITALS.

41 “clean” convalescent cases of scarlet fever were transferred from the full wards at Walker Gate to the Moor during the early part of the year.

Thanks to the decline in prevalence of that disease, the last case was discharged from the Isolation Hospital on February 16th.

On April 4th one case of suspected smallpox was sent in for observation, and four contacts. These were all discharged as negative on April 18th.

On May 11th another suspected smallpox case was admitted (from a military camp outside the City) but was discharged as negative (erythema iris) next day.

The wards were unoccupied for the remainder of the year.

TUBERCULOSIS.

Report of the Tuberculosis Medical Officer.

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

Herewith I beg to submit my Report on the work of the Tuberculosis section during the year 1916.

The Combined Scheme has worked harmoniously and well, and but for the abnormal circumstances brought about by the war, a reduction of the phthisis mortality should have become evident by now.

The personnel of the staff has remained unchanged, and one and all have worked hard to the one end.

Again, Sir, let me thank you for your continued interest in the work of this section of the Department and your willing and valued counsel when difficulties have arisen.

Your obedient servant,

WILLIAM H. DICKINSON, M.B., D.P.H.,

Tuberculosis Medical Officer.

REPORT.

Notifications.—1,125 notifications of tuberculosis were received by the Medical Officer of Health, but some of the patients had already been notified, so that the total number of new cases was 987, of whom 642 were certified to be suffering from pulmonary, and 345 from other forms of tuberculosis.

The details are set forth in the accompanying tables:—

SUMMARY OF NOTIFICATIONS DURING THE PERIOD, 1ST JANUARY TO 31ST DECEMBER, 1916.

AGE PERIODS.	Number of Notifications on Form "A."													Number of Notifications on Form "B."				Number of Notifications on Form "C."		Number of Notifications on Form "D."			
	Primary Notifications.													Primary Notifications.				Total Notifications (including Cases previously notified by other doctors).		Poor Law Institutions.	Sanatoria.	Poor Law Institutions.	Sanatoria.
	Primary Notifications.													Primary Notifications.				Total Notifications (including Cases previously notified by other doctors).					
	0 to 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and upwards.	TOTAL.											
Pulmonary— Males	16	19	18	29	35	55	86	80	30	9	377	428	...	3	1	4	70	64	51	63		
Females	10	16	29	29	36	61	51	17	2	1	252	295	...	4	5	9	24	37	11	33		
Non-Pulmonary— Males	12	47	41	30	19	5	6	5	4	...	178	196	...	3	1	4	6	6	2	8		
Females	6	36	32	40	12	11	4	1	1	...	159	174	...	2	2	4	8	7	5	7		
TOTAL	18	109	108	117	89	87	141	147	103	10	966	1,093	...	12	9	21	108	114	69	111		

Form "A."—Notification by any Medical Practitioner of a case of Tuberculosis (whether at an Institution or otherwise).
 Form "B."—Notification by School Medical Officers of cases of Tuberculosis in children attending Public Elementary Schools of which he has become aware in the course of inspection.
 Form "C."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons admitted who are suffering from Tuberculosis.
 Form "D."—Notifications by the Medical Officers of Poor Law Institutions and Sanatoria of persons discharged who are suffering from Tuberculosis.

NOTIFICATIONS—ORIGINAL AND REPEATED.

Year.	TOTAL	Nett New Notifica-tions.	Notified twice.	Notified three times.	Notified four times.	Notified five times.	Notified six times.	Notified seven times.
1912	1,249	972	192	59	18	6	1	1
*1913	1,441	1,246	158	26	9	2	...	...
1914	1,060	958	88	13	...	1	...	...
1915	1,108	964	131	9	4	...	...	...
1916	1,125	987	128	9	1	...	...	...

*On February 1st, 1913, all forms of Tuberculosis became notifiable.

SOURCE OF NOTIFICATIONS.

Year.	Total Number of Nett Cases Notified.	Notified by Medical Practitioners.	Notified by the Tuberculosis Medical Officer.	From Other Sources than Medical Practitioners, Death Returns, etc.
1912	972	893	Nil.	79
1913	1,246	957	140	149
1914	958	624	180	154
1915	964	694	146	124
1916	987	757	162	68

Deaths.—During the year 584 deaths (uncorrected) were registered as due to some form of tuberculosis. Of this number, 183 were known to be insured persons.

Of these, 407 were certified as due to pulmonary tuberculosis (including 25 cases of acute phthisis) and 177 to other forms of the disease.

The death rates per 1,000 population were as under:—

Pulmonary Tuberculosis	...	...	...	1.46
Other Forms of Tuberculosis	...	...	...	0.64
Total Tuberculosis Death Rate (uncorrected)	...	...	...	<u>2.10</u>

The details as to the parts affected and the age periods are given on the following page.

DEATHS (UNCORRECTED)—CLASSIFICATION ACCORDING TO AGE AND TYPE.

	Under 1 year.	1 to 2 years.	2 to 5 years.	5 to 15 years.	15 to 25 years.	25 to 45 years.	45 to 65 years.	65 years and upwards.	TOTAL.
Pulmonary Tuberculosis (not acute) ...	...	10	7	21	71	165	98	10	382
Acute Phthisis ...	...	...	2	1	10	8	4	...	25
Acute Miliary Tuberculosis ...	...	...	1	2	1	1	...	...	5
Tuberculous Meningitis ...	14	24	16	21	6	5	1	1	88
Tuberculosis of Peritoneum and Intestines ...	3	8	8	9	12	8	2	...	50
Tuberculosis of Spinal Column ...	...	1	1	1	1	3	2	1	10
Tuberculosis of Joints ...	...	...	2	1	1	1	...	...	5
Tuberculosis of other Organs ...	1	...	1	3	1	4	...	...	10
Disseminated Tuberculosis ...	1	...	2	2	2	2	...	...	9
SUMMARY.									584
Pulmonary ...	...	10	9	22	81	173	102	10	407
Non-Pulmonary ...	19	33	31	39	24	24	5	2	177
									584

It must be noted, however, that 38 residents of Newcastle died in other parts of the United Kingdom from tuberculosis (30 pulmonary; 8 other forms), while 65 of the deaths (20 pulmonary; 45 other forms) registered in Newcastle were those of temporary residents.

The corrected deaths and death rates per 1,000 of the population were :—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis ...	417	1.50
Other Forms ...	140	0.50
All forms of Tuberculosis (corrected)	557	2.00

The reason for the differences between the uncorrected and corrected figures for the two sub-divisions is that patients with pulmonary tuberculosis leave the city for the fresh air of the country, while persons from the surrounding districts, suffering from surgical tuberculosis, flock to the Royal Victoria Infirmary and other hospitals for active treatment.

Occupations.—The occupations of 359 persons who died during the year were ascertained to be as follows:—

OCCUPATION OF PERSONS WHO DIED FROM TUBERCULOSIS DURING
THE YEAR 1916.

Trade or Occupation.	No.	Trade or Occupation.	No.	Trade or Occupation.	No.
Housewives ...	70	Brought forward..	285	Brought forward..	329
Scholars ...	31	Blacksmith's Strks.	2	Ironmoulder ...	1
Labourers ...	30	Cattle Drovers ...	2	Iron Turner ...	1
Under 5 years ...	22	Dressmakers ...	2	Jeweller ...	1
Machine Men ...	13	Drillers ...	2	Lead Worker ...	1
No Occupation ...	12	Farm Servants ...	2	Leather Cutter ...	1
Housekeepers ...	8	Electricians ...	2	Lavatory Attendant	1
Barmen 3 ...	8	Gaugers ...	2	Furnaceman ...	1
Cartmen ...	8	Grocers ...	2	Musician ...	1
Soldiers 1 ...	8	Munition Workers	2	Moulder ...	1
Fitters ...	6	Messengers ...	2	Milkman ...	1
Miners ...	6	Plumbers ...	2	Milliner ...	1
Domestic Servants	6	Patternmakers ...	2	Naval Man... ..	1
Shop Assistants ...	5	Porters ...	2	Painter ...	1
Hawkers ...	4	School Teachers ...	2	Plater ...	1
Holder's Up ...	4	Brassfinisher ...	1	Packer ...	1
Joiners ...	4	Bottle Washer ...	1	Potter ...	1
Laundresses ...	4	Bagmaker ...	1	Salesman ...	1
Tailors ...	4	Boilermaker ...	1	Slinger ...	1
Tailoresses ...	4	Craneman ...	1	Sawyer ...	1
Clerks ...	3	Coachman ...	1	Stonemason ...	1
Agents ...	3	Car Conductor ...	1	Student ...	1
Compositors ...	3	Cabinetmaker ...	1	Shoemaker ...	1
Charwomen ...	3	Engineman ...	1	Steel Dresser ...	1
Engineers ...	3	Erector ...	1	Telegraphist ...	1
Motormen ...	3	Forgeman ...	1	Turner ...	1
Machinists... ..	3	Fireman ...	1	Window Cleaner ...	1
Travellers ...	3	French Polisher ...	1	Wireman ...	1
Butchers ...	2	Greenkeeper ...	1	Tinsmith ...	1
Blacksmiths ...	2	Hairdresser ...	1	Storekeeper ...	1
		Warehouseman ...	1	Shipwright ...	1
Carried forward...	285	Carried forward...	329	Total ...	359

In the deaths from "other forms" of tuberculosis more than 50 per cent. occurred before the age of 5 years.

The details appear in the following Table:—

DEATHS FROM TUBERCULOSIS.

SEX AND AGE DISTRIBUTION.

Lungs.

Year.	Sex.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over	Total.	Cases Notified.	Death rate per 1,000 of population (corrected)
1912	Male ...	...	5	6	6	15	25	49	39	40	11	5	201	541	1.33
	Female ...	1	4	8	10	18	22	33	27	16	7	3	149	431	
1913	Male ...	1	9	5	5	6	14	43	37	35	10	6	171	453	1.20
	Female ...	...	4	5	8	17	11	35	26	13	6	1	126	343	
1914	Male ...	...	3	4	3	14	14	47	59	47	15	4	210	398	1.38
	Female ...	1	6	7	13	15	17	32	25	19	6	...	141	267	
1915	Male ...	3	3	7	5	15	22	53	59	39	23	10	239	367	1.37
	Female ...	1	4	4	12	12	9	25	31	22	7	1	128	245	
1916	Male ...	...	9	2	5	18	20	38	56	54	22	9	233	381	1.50
	Female ...	...	6	7	7	19	15	42	35	17	5	2	155	261	

Other Forms.

1912	Not a notifiable disease.														
1913	Male ...	15	29	12	6	4	1	6	4	2	1	4	84	254	0.56
	Female ...	14	24	8	8	2	2	5	4	1	...	...	68	196	
1914	Male ...	13	25	14	7	5	7	4	3	2	1	1	82	135	0.57
	Female ...	17	22	13	9	2	3	3	...	3	2	...	74	158	
1915	Male ...	12	30	16	7	4	2	3	1	2	1	3	81	179	0.58
	Female ...	17	28	10	7	8	2	4	3	2	...	...	81	173	
1916	Male ...	11	34	9	8	9	1	5	4	1	1	...	83	182	0.50
	Female ...	6	25	6	8	...	2	2	3	...	...	...	52	163	

N.B.—The above only includes those persons who were residents of
and died in Newcastle-upon-Tyne.

Duration of Illness.—After every death from pulmonary tuberculosis, enquiry was directed, when possible, to the length of time the deceased had been ill. The average duration of illness in such cases during 1916 was 27 months, in 1915, 26 months, in 1914, 23 months, while in 1913 it was approximately 26 months, and in 1912, 28 months.

CASES OF TUBERCULOSIS OF THE LUNGS. GIVING THE PERIOD BETWEEN
THE DATE OF NOTIFICATION AND THE DATE OF DEATH,

Year.	No. of Deaths Investigated.	Average period from the date of notification to the date of death. MONTHS.	Average period from the date of notification to the date of death; deducting cases not notified before death.	Number of deaths which occurred, that had not been notified before death.
1913	306	4·8	6·5	76
1914	351	6·5	8·5	85
1915	323	10·0	11·5	44
1916	341	11·25	12·5	37

Family History.—In 154 instances amongst the 359 cases investigated after death, *i.e.*, in 42·89%, there was a history that some near relation was suffering from or had died of pulmonary tuberculosis. Where one or both parents were phthisical, the average age at death was 24·5 years, as compared with 32·79 years attained by those of non-phthisical parentage.

Of the 388 deaths from tuberculosis of the lung, 217, or 57 %, were known to have had tubercle bacilli in the sputum.

DEATHS FROM TUBERCULOSIS; GIVING THE NUMBER OF CASES WHO HAD
RELATIONS WHO DIED, OR WHO ARE ILL WITH TUBERCULOSIS.

Year.	No. of enquiries.	No. of cases who had relations with Tuberculosis.	Percentage to No. of enquiries.
1913	251	82	32·66
1914	313	132	42·17
1915	353	158	44·75
1916	*359	154	42·89

* Included in the above enquiries are 22 deaths from " Other Forms " of Tuberculosis.

AVERAGE PERIOD OF LIFE OF PERSONS ONE OR BOTH OF WHOSE PARENTS
DIED OF PULMONARY TUBERCULOSIS AS COMPARED WITH THOSE
WHO HAD NO SUCH HISTORY.

Year.	No. of cases where enquiries were made.	No. of cases where parent had died of Tuberculosis	Average period of life of same in years.	No. of cases where parent had not died of Tuberculosis.	Average period of life of same in years.
1913	251	26	24	225	34
1914	313	48	25·5	265	32
1915	353	56	26	297	33
1916	359	52	24·5	307	32·79

Notification-Death Ratio.—As there were 642 (nett) notifications of pulmonary tuberculosis, and 417 deaths, the ratio of notifications to deaths was as 1·54 to 1.

During the year there were 345 (nett) notifications of other forms of tuberculosis, and 140 deaths, the notification-death ratio was as 2·5 to 1.

TABLE SHOWING NUMBER OF DEATHS FROM TUBERCULOSIS AND NUMBER WHO WERE ATTENDED FROM THE DISPENSARY.

Year.	Deaths (uncorrected).			Attended Dispensary.	Visited by Nurses, but never attended Dispensary.	Total.	The percentage of cases known to Dispensary to the number of deaths.
	Lungs.	Other Forms.	Total.				
1913	311	170	481	63	188	251	52·18
1914	365	170	535	158	66	224	41·87
1915	378	184	562	206	64	270	48·04
1916	407	177	584	193	89	282	48·29

Deaths in Institutions.—75 patients died of phthisis in the Union Infirmary, and 26 in the phthisis pavilions at Walker Gate.

There can be no doubt that the increased use of such hospitals, by patients in the later stages of consumption, is likely to have a good effect on the phthisis death rate, for while the sufferer is well looked after, the dependants are freed from further risk of infection and are better able to earn sufficient money to provide the necessaries of life.

Ward Distribution of Tuberculosis.—Considerable interest attaches to the prevalence of tuberculosis in the various wards of the city, and a table has been prepared showing, for each ward, the estimated populations, the number of notifications and deaths, together with the rates per thousand, and also the number of insured persons who have applied for sanatorium benefit, the number on the Dispensary register, and the number of persons whose sputum has been examined and found to contain tubercle bacilli.

It will be apparent at once from the table that the death-rate per thousand population (which in the case of tuberculosis is of far more practical value than the notified incidence per thousand) is much higher in the poorer and more congested wards than in those enjoying more favourable conditions.

WARD DISTRIBUTION OF TUBERCULOSIS.

WARD.	Population estimated on Registrar General's figures for 1915.	NOTIFICATIONS.						DEATHS.						Application for Sanatorium. Benefit.	Persons on Dispensary Register.	Sputa examined with positive result.
		Pulmonary.	Attack	Non-Pulmonary.	Attack	TOTAL.	Attack	Pulmonary.	Death	Non-Pulmonary.	Death	TOTAL.	Death			
			rate per 1,000 of population.		rate per 1,000 of population.		rate per 1,000 of population.		rate per 1,000 of population.		rate per 1,000 of population.		rate per 1,000 of population.			
St. Nicholas	3,656	19	5.20	6	1.64	25	6.84	12	3.28	3	0.82	15	4.10	4	14	3
St. Thomas	14,449	14	0.97	11	0.76	25	1.73	8	0.55	3	0.21	11	0.76	5	23	9
St. John's	15,725	40	2.54	18	1.15	58	3.69	25	1.59	8	0.51	33	2.10	18	53	19
Stephenson	19,205	54	2.81	25	1.30	79	4.11	32	1.66	13	0.68	45	2.34	17	66	37
Armstrong...	16,003	41	2.56	21	1.31	62	3.87	30	1.87	17	1.06	47	2.93	13	32	23
Elswick ...	12,955	32	2.47	6	0.46	38	2.93	18	1.39	2	0.15	20	1.54	8	31	11
Westgate ...	15,635	25	1.60	15	0.96	40	2.56	23	1.47	9	0.57	32	2.04	17	34	20
Arthur's Hill	11,704	20	1.71	10	0.85	30	2.56	14	1.19	2	0.17	16	1.36	5	11	5
Benwell ...	18,010	56	3.11	32	1.77	88	4.88	25	1.39	15	0.83	40	2.22	22	55	21
Fenham ...	11,301	19	1.68	14	1.24	33	2.92	9	0.80	9	0.80	18	1.60	7	21	9
All Saints ...	18,130	58	3.20	34	1.87	92	5.07	33	1.82	7	0.38	40	2.20	18	64	22
St. Andrew's	12,783	42	3.29	15	1.17	57	4.46	27	2.11	3	0.23	30	2.34	12	50	18
Jesmond ...	11,317	19	1.68	2	0.17	21	1.85	10	0.89	1	0.08	11	0.97	1	11	14
Dene ...	12,478	13	1.04	7	0.56	20	1.60	8	0.64	1	0.08	9	0.72	2	14	6
Heaton ...	15,877	40	2.52	14	0.88	54	3.40	21	1.32	4	0.25	25	1.57	22	51	30
Byker ...	17,904	44	2.45	32	1.79	76	4.24	26	1.45	11	0.61	37	2.06	16	85	19
St. Lawrence	18,343	33	1.80	33	1.80	66	3.60	27	1.47	9	0.49	36	1.96	13	83	17
St. Anthonys	16,165	41	2.53	27	1.67	68	4.20	23	1.42	9	0.56	32	1.98	11	92	17
Walker ...	16,467	32	1.94	23	1.39	55	3.33	17	1.03	9	0.55	26	1.58	14	60	18
City ...	278,107	642	2.31	345	1.24	987	3.55	388	1.40	135	0.48	523	1.88	225	850	318

NOTE.—Deaths occurring in Public Institutions, have been allocated in every case to the Wards in which they resided.
The figures relating to deaths only include those persons who were residents of and died in Newcastle-upon-Tyne.

There were 56 certificates given to persons who had been referred to the Tuberculosis Medical Officer by the Army Medical Recruiting Board. Of these 9 were non-residents of Newcastle-upon-Tyne.

Housing Accommodation.—The numbers of rooms in the dwellings occupied by 359 persons who died from tuberculosis (all forms) were as follows :—

Rooms in dwelling.	1	2	3	4	More than 4	Common Lodging Houses.	Total.
Deaths.	30	97	90	85	51	6	359

As regards the type of house occupied, 208 were flats, 87 tenements, 58 self-contained, and 6 common lodging houses.

Number of occupants in houses in which deaths from pulmonary tuberculosis have occurred.

Size of Holding (Rooms)	Number of Houses.	Number of Occupants.	Average No. of Occupants per Room.
1	27	79	2·9
2	101	431	2·2
3	80	424	1·8
4	81	458	1·4
5	17	119	1·4
6	8	46	1·0
7	10	51	0·7
8	6	31	0·6
9	6	39	0·7
TOTAL ...	336	1678	1·5

THE "COMBINED SCHEME."

The Work of the Tuberculosis Dispensary. —The number of new patients entered on the Dispensary register

during the year was 850, and of these 306 were 'insured' persons, 438 dependents of 'insured' persons while 106 were 'uninsured'.

TABLE C.

PERSONS ON DISPENSARY REGISTER UNDER THE FOLLOWING HEADINGS.

Year.	Number on Dispensary Register.	Insured.	Dependents	Uninsured.	Notified by Medical Practitioners.	Notified by T.M.O.	Contacts.
*1913	729	299	318	112	457	140	132
1914	1046	388	499	159	396	180	470
1915	899	297	484	118	286	146	467
1916	850	306	438	106	288	162	400

* From March 17th.

Many of these were contacts and of them (162, equal to 19 per cent.) were first discovered to be suffering from tuberculosis by the Tuberculosis Medical Officer, a considerable proportion being fairly advanced cases and active sources of infection, expectorating tubercle bacilli in their sputum.

The number of the attendances at the Dispensary for consultation with the Tuberculosis Medical Officer was 7,758.

The cases on the Dispensary register were derived from many sources, the majority being notified cases and their contacts reported by the Dispensary nurses, who visit practically every person notified as suffering from tuberculosis of the lungs.

Many, however, were referred to the Tuberculosis Medical Officer, with a view to sanatorium or other treatment, by the Insurance Committee, the School Medical Officers, private practitioners, out-patient department of the Royal Infirmary

and other philanthropic agencies. The details appear in the subjoined table :—

TABLED.

RECOMMENDED BY	1914	1915	1916
Medical Practitioners	227	200	230
Dispensary Nurses	438	397	270
School Medical Officers	101	57	88
Came of own accord	211	131	102
Lady Almoner, Royal Victoria Infirmary ...	24	31	75
Insurance Committee	15	4	15
Friends of Patients	11	21	24
Tuberculosis Medical Officer	10	16	11
Charity Organisation Society	5	6	1
Poor Children's Holiday Association ...	2	2	3
Superintendent of Midwives and Health Visitors	2	14	6
Soldiers' and Sailors' Families Association ...	...	7	2
Military Authorities ... ..	...	...	19
Other Sources ... ..	...	13	4
TOTAL	1046	899	850

The Work of the Nurses.—In all, 505 new patients were visited and 7,515 subsequent visits were made, making a total of 8,020 visits for the year.

The main object of these visits is to see that the patient is carrying out, in every detail, the instructions of the doctor in attendance, more especially with regard to the prevention of the spread of infection to other members of the household.

The nurse can often give good advice on home nursing, the improvisation of a separate bed for the sufferer, the preparation of simple and inexpensive articles of diet, and kindred subjects.

Enquiry is also directed to the health of contacts, and any who are ailing are urged to see their own doctor, if they have one, or to come to the Dispensary for examination.

In this way a large number of unrecognised cases of tuberculosis has been discovered, especially amongst children.

The nurses report to the Tuberculosis Medical Officer every morning upon the previous day's work, special mention being made, in the case of new patients, of the number and relation of the inmates of the house occupied, the number of rooms in the house, the sleeping arrangements of the patient, and any obvious sanitary defects, *e.g.*, improper ventilation or bad drainage.

The Work of the Sanitary Inspector.—This officer disinfects houses after deaths or changes of address of consumptives, arranges for the removal and disinfection of phthisical patients' clothing and bedding, and reports on any insanitary conditions existing in the homes of dispensary patients, such as overcrowding, insufficient ventilation, or defective sanitary arrangements.

The details of his work were as follows:—

Houses visited	...	...	...	...	...	537
Houses disinfected (total)	...	...	...	...	...	537
For patients going to Sanatoria	...	...	...	...	...	55
„ „ changing their address	...	...	...	...	...	18
„ „ changing their rooms	...	...	...	...	...	—
„ „ going to Hospital	...	...	...	...	...	180
After death	...	...	...	...	...	284
Rooms disinfected in above houses	...	...	...	...	...	619
Total number of visits	...	...	...	...	...	1,070
Houses found to have sanitary defects (including overcrowding) and referred to the Inspector of Nuisances	...	...	...	...	...	17

Bacteriological Examination of Sputum.—624 specimens of sputum were examined for presence of tubercle bacilli at the College of Medicine, 172 being positive, and 452 negative.

708 specimens were examined at the Dispensary, and of these 146 were positive, and 562 negative.

The following table shows the division into age periods of the persons whose sputa were found to contain tubercle bacilli:—

AGE PERIODS OF PERSONS WHOSE SPUTA, ON EXAMINATION, PROVED TO CONTAIN TUBERCLE BACILLI.

	5 years to 10 years.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and Upwards.	TOTAL.
College of Medicine—Males ...	...	...	11	9	13	35	22	8	4	102
College of Medicine—Females ...	...	1	15	9	21	17	5	2	...	70
Tuberculosis Dispensary—Males ...	1	...	10	15	25	28	18	1	1	99
Tuberculosis Dispensary—Females ...	...	1	11	8	12	11	4	...	...	47
Total... 	1	2	47	41	71	91	49	11	5	318

Institutional Treatment.—Under the ‘Combined Scheme’ 30 beds for adults are maintained at Barrasford Sanatorium, whilst 62 beds are available at the City Hospital, Walker Gate, for more advanced cases. 30 beds are maintained at Stannington Sanatorium for the treatment of tuberculous children. 20 of the 30 Corporation beds at Barrasford are reserved for insured persons.

The following tables show the number of patients admitted to *Barrasford Sanatorium*, *Stannington Sanatorium*, and the *City Hospital*, Walker Gate, together with the results of treatment where it had been completed:—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM,
AND THE RESULTS.

YEAR.	Number of Patients admitted to the Sanatorium.	MALES.	FEMALES.	Condition at the end of Year 1916.					Total Number of days in the Sanatorium.	Average number of days in the Sanatorium.
				Well, working or fit to work.	Improved or fit for light work.	Unimproved or relapsed.	Dead.	Lost sight of, or left the district.		
†1908	21	13	8	1	2	...	13	5	2,739	130
1909	43	29	14	4	4	3	21	11	4,572	106
1910	73	42	31	7	5	1	42	18	7,795	107
1911	67	48	19	3	3	2	41	18	5,651	86
1912	83	59	24	13	7	4	36	23	8,302	98
1913	86	61	25	30	12	3	33	8	9,513	110
1914	78	55	23	45	15	4	12	2	11,266	144
*1915	70	52	18	34	14	10	8	4	9,995	143
1916	67	43	24	20	11	5	2	...	5,220	140
TOTAL...	588	402	186	157	73	32	208	89	65,053	111
Received treatment in previous years § ...	19	10	9	2	4	2	9	2	...	...
Nett Cases	569	392	177	155	69	30	199	87	65,053	114

† From November 22nd.

* 29 beds were still occupied at the end of year, and the total days are of those who completed treatment.

§ 19 patients received treatment in previous years, and should be deducted from the total. The details are as follows:—

In 1911.—5 patients in this year had received treatment in 1910.

„ 1912.—1	do.	do.	do.	1909.
„ „ —3	do.	do.	do.	1911.
„ 1913.—1	do.	do.	do.	1909.
„ „ —2	do.	do.	do.	1910.
„ „ —1	do.	do.	do.	1911.
„ „ —3	do.	do.	do.	1912.
„ 1914.—1	do.	do.	do.	1911.
„ 1915.—1	do.	do.	do.	1910.
„ 1916.—1	do.	do.	do.	1915.

BACTERIAL HISTORY OF
PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM.

YEAR.	Persons Admitted to Barrasford Sanatorium.			Persons Deceased at end of Year 1916.			Cases who had Tubercle Bacilli in the Sputum and could not be traced at end of Year 1916.
	TOTAL.	Number who had Tubercle Bacilli found in the Sputum.	Number who had <i>not</i> Tubercle Bacilli found in the Sputum. *	TOTAL.	Tubercle Bacilli found in the Sputum,	Tubercle Bacilli <i>not</i> found in the Sputum.	
1908	21	12	9	13	11	2	1
1909	43	28	15	21	18	3	2
1910	73	54	19	42	35	7	11
1911	62	39	23	37	29	8	4
1912	79	45	34	35	30	5	9
1913	79	56	23	31	25	6	3
1914	77	55	22	11	11	...	1
1915	69	54	15	7	5	2	2
1916	66	47	19	2	1	1	...
TOTAL...	569	390	179	199	165	34	33

* In 1909 in 1 of this number Tubercle Bacilli were found in Sputum some time after discharge.
,, 1910 ,, 2 do. do. do.
,, 1911 ,, 8 do. do. do.
,, 1912 ,, 7 do. do. do.
,, 1913 ,, 1 do. do. do.
,, 1914 ,, 2 do. do. do.
,, 1915 ,, 1 do. do. do.
,, 1916 ,, 1 do. do. do.

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM
DURING YEAR 1916.

	In Barrasford Sanatorium on 1st January, 1916.	Admitted during year.	Persons who completed treatment during year.			In Barrasford on 31st Dec., 1916.
			Number.	Total Number of days.	Average Length of Stay in days.	
Uninsured Males ...	4	5	9	1,367	152	...
Uninsured Females...	2	10	8	1,074	135	4
Insured Males ...	15	38	36	5,703	158	17
Insured Females ...	5	14	11	1,861	169	8
Total ...	26	67	64	10,005	156	29

Results of treatment of patients discharged from Barrasford Sanatorium during year 1916 :—

RESULTS.					Males.	Females.	Total.
(a) Fit to work	...	...	...	...	30	8	38
(b) Improved	...	...	...	...	13	10	23
(c) Without improvement	...	...	...	...	2	1	3
(d) Worse	...	...	...	...	...	...	...
Total					45	19	64

CHILDREN WHO RECEIVED TREATMENT IN STANNINGTON SANATORIUM
DURING YEAR 1916.

	In Sana- torium on 1st Jan., 1916.	Admitted during the year.	Persons who completed treatment during the year.			In Sana- torium on 31st Dec., 1916.
			Number.	Total number of days.	Average length of stay in days.	
Males	16	42	42	5,687	135	16
Females	13	32	31	5,133	166	14
Total	29	74	73	10,820	149	30

Results of treatment of patients discharged from Stan-
nington Sanatorium during year 1916 :—

				Males.	Females.	Total.
(a) Much Improved	...	...	...	35	21	56
(b) Improved	...	...	...	6	7	13
(c) Without Improvement	...	...	...	1	3	4
(d) Worse	...	...	...	...	...	...
Total				42	31	73

**PATIENTS WHO RECEIVED TREATMENT IN SANATORIUM PAVILIONS
AT THE CITY HOSPITAL, WALKER GATE, DURING YEAR 1916.**

	Patients in Hos- pital on 1st Jan., 1916.	Patients admitted.	Patients who have completed treatment.			In Hospital 31st Dec., 1916.
			Number.	Total number of days.	Average length of stay in days.	
Uninsured, Male ...	1	5	5	623	124	1
„ Female ...	3	28	20	1562	78	11
Insured, Male ...	7	95	77	4795	62	25
„ Female ...	1	18	13	940	72	6
Total ...	12	146	115	7920	69	43

N.B.—Four patients were readmitted and are counted as eight admissions.

Five patients were transferred to Barrasford Sanatorium.

29 patients were admitted, discharged from the services as medically unfit.

Result of treatment of patients who completed treatment in the Sanatorium Pavilions, at the City Hospital, Walker Gate :—

	Males.	Females.	Total.
(a) Fit to Work ...	6	2	8
(b) Improved ...	37	12	49
(c) Without Improvement ...	21	11	32
(d) Died in Hospital ...	18	8	26
Total ...	82	33	115

N.B.—26 patients died in the Institution, and 17 have died since being discharged.

After Care.—Every effort is made to keep in touch with patients after they leave the Sanatoria and Hospitals, in order to encourage them in their battle against the disease, and to see that they continue to observe the rules for the preservation of health and prevention of infection of others which they learned whilst undergoing institutional treatment.

A very pressing need is some means of providing suitable employment for phthisical patients, and probably an "After Care Committee" could best deal with this matter.

Close communication is maintained between the Tuberculosis Dispensary and the various charitable agencies, through which much material assistance is obtained for individual patients, for some of whom work has been found. Much more remains to be done in this direction, however, and a special body, such as suggested above, would probably be best able to cope with the necessities of the situation.

It is far too common to see cases return from Sanatorium or Hospital much improved in health and able to undertake a certain amount of work, and then relapse, owing to insufficient nourishment whilst looking for open-air employment.

Doubtless the establishment of farm colonies would overcome this difficulty to some extent, but the average town-dweller is unable to keep a wife and family on the wages paid to a farm servant.

It is to be hoped that one of the effects of this unhappy war will not be to postpone further the satisfactory solution of the problem.

TUBERCULOSIS SECTION, 1916.

MONTHLY SUMMARY OF WORK ACCOMPLISHED.

			1916.												Total for Year.		
			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1914	1915	1916
Notifications	...	...	94	71	102	98	125	95	115	71	50	62	55	49	937	964	952
Lungs	...	...	67	39	65	62	70	68	78	44	26	49	36	38	642	612	605
Other Forms	...	...	27	32	37	36	55	27	37	27	24	13	19	11	345	352	293
By Tuberculosis M. O.	...	...	18	6	9	24	23	19	14	14	8	11	5	11	162	146	120
Deaths	...	...	46	41	28	49	60	61	48	49	28	35	32	46	523	529	507
Lungs	...	...	36	31	19	41	43	46	34	36	20	26	20	36	322	367	351
Other Forms	...	...	10	10	9	8	17	15	14	13	8	9	12	10	135	162	156
Attendance at Dispensary	...	...	505	565	605	674	831	697	657	670	616	700	721	517	7752	6473	6712
New Patients	...	...	67	70	65	88	97	84	71	70	61	79	57	41	850	899	1046
<i>Barrasford Sanatorium.</i>																	
Admitted	...	...	6	7	4	3	8	11	2	8	4	7	...	7	67	70	72
Discharged	...	...	3	8	3	2	9	10	2	8	5	6	3	5	64	74	72
<i>Sanatorium Pavilions.</i>																	
<i>Walker Gate.</i>																	
Admitted	...	...	6	5	5	16	8	13	15	16	21	16	18	7	146	54	40
Discharged	...	...	3	3	4	2	2	4	9	10	13	13	14	12	88	32	27
Died	...	...	1	3	...	3	3	5	1	6	...	2	1	1	26	17	14
<i>Stannington Sanatorium.</i>																	
Admitted	...	...	6	13	6	3	9	8	8	5	8	1	6	1	74	65	72
Discharged	...	...	5	13	6	3	9	8	8	5	8	1	6	1	73	65	55
<i>Bacteriological Exams.</i>																	
College of Medicine—total	...	...	61	58	45	55	71	47	54	47	37	56	42	51	624	600	714
Sputum—Positive	...	...	18	15	17	13	19	15	19	10	8	20	9	9	172	147	202
Negative	...	...	43	43	28	42	52	32	35	37	29	36	33	42	452	453	512
Dispensary	...	...	53	47	31	68	90	65	67	43	61	70	57	56	708	508	764
Sputum—Positive	...	...	13	10	9	13	18	10	18	11	13	11	12	8	146	140	182
Negative	...	...	40	37	22	55	72	55	49	32	48	59	45	48	562	468	582
Urine	...	...	54	47	47	49	77	72	65	67	45	55	63	40	681	272	...
<i>Evening Consultations.</i>																	
Attendances	...	...	61	76	107	95	132	90	92	125	103	89	129	81	1120	1124	1000
New Patients	...	...	6	5	7	9	14	9	7	15	6	3	11	4	96	128	130
<i>Work of Nurses.</i>																	
New Patients	...	...	58	39	55	23	60	50	68	33	27	35	39	18	505	1055	1306
Subsequent Visits	...	...	652	637	756	487	765	735	533	545	505	658	721	521	7515	5429	6444
Total	...	...	710	676	811	510	825	785	601	578	532	693	760	539	8020	6484	7750
East District	...	...	347	342	380	323	415	376	327	365	164	371	371	269	4050	3323	3729
West District	...	...	363	334	431	187	410	409	274	213	368	322	389	270	3970	3161	3921
Special Inspector's Visits	...	...	89	92	70	68	98	144	96	110	80	78	65	80	1076	1400	2385
Houses Disinfected	...	...	40	43	37	40	54	72	45	54	38	38	32	44	537	512	549
Rooms Disinfected	...	...	44	52	43	43	68	81	49	56	42	42	43	56	619	779	1077
House Sanitary Defects	...	...	2	1	1	1	...	1	1	...	1	...	9	...	17	23	48

NOTE.—The figures relating to deaths only include those persons who were residents of and died in Newcastle-upon-Tyne.

WILLIAM H. DICKINSON., M.B., D.P.H.,

Tuberculosis Dispensary,
July, 1917.

Tuberculosis Medical Officer.

DISINFECTION.

4,881 cases of notifiable and 70 of non-notifiable infectious disease have been inquired into by the Infectious Disease Inspectors and Health Visitors, and, with the exception of measles, the houses or rooms connected therewith disinfected by spraying with formalin. The Lord Mayor's Information Bureau (9 Eldon Square) was disinfected 104 times. In connection with cases of tuberculosis, 537 houses, including 619 rooms, were similarly disinfected. Spraying outfits are also lent to military units requiring them for use in quarters and billets.

In all cases amongst civilians, except measles, the bedding and other infected articles were removed to the Disinfecting Station at the City Hospital, Walker Gate, and after sterilisation by steam returned to the owners.

Inquiries were also made in connection with 19 smallpox and 116 cerebro-spinal fever contacts. These persons were kept under observation until the possible incubation period was over.

363 extra visits of supervision to the cases left at home were entailed upon the Infectious Diseases Inspectors owing to the pressure upon the accommodation at the City Hospitals at the time.

INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS AT THE CITY HOSPITAL FOR INFECTIOUS DISEASES, WALKER GATE, AND THE ISOLATION HOSPITAL, TOWN MOOR.

ARTICLES FROM CITY.		ARTICLES—HOSPITAL PROPERTY.	
1916.	1915.	1916.	1915.
33,667	46,922	7,257.	4,135.

The above list includes only civilian work. In addition, the following articles from military billets and camps were disinfected :—

ARTICLES DISINFECTED FOR MILITARY AUTHORITIES.

DESCRIPTION.	TREATED AT.		
	City Hospital.	Moor Hospital.	TOTAL.
Kits and Bags	366	...	366
Blankets	3,527	*6,619	10,146
Other Articles of Bedding and Wearing Apparel	2,034	2,311	4,345
TOTAL	5,927	8,930	14,857

* 6 from beyond the City.

The staff have thus dealt with approximately 56,000 articles at the two disinfectors during the year.

INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH DEPARTMENT.

	1916.	1915.
Half Straw Mattresses	16	16
Flock Beds ... ..	...	2

Orders for goods to the value of £4 8s. 4d. were also given in replacement of similar articles destroyed by order of the Medical Officer of Health.

Fluid disinfectant, in half-pint tins, and disinfectant soap, in pound bars, were given out free on the order of the special inspectors, for home use in connection with infectious disease. Every precaution was taken to ensure that the material so dispensed was properly and economically used.

DISINFECTANTS DISTRIBUTED—1916.

FROM	FOR INFECTIOUS DISEASES.		FOR PHTHISIS	
	FLUID ($\frac{1}{2}$ pint tins.)	SOAP (1 lb. bars.)	FLUID ($\frac{1}{2}$ pint tins.)	SOAP (1 lb. bars.)
Health Department	287	33	...	...
Tuberculosis Dispensary ... ..	...	...	351	...
Corporation Yard, Benwell	67	46	6	5
Corporation Yard, Walker	23	10	...	...
TOTAL	377	89	357	5

BACTERIOLOGICAL INVESTIGATIONS, 1916.

The following is a summary of the bacteriological investigations carried out on behalf of the Health Department of the Newcastle Corporation by Professor H. J. Hutchens at the University of Durham College of Medicine, Newcastle.

REPORT.

1,980 specimens were submitted for examination. The nature of the investigations, and the results obtained were as follows :—

	DIPHTHERIA.			TUBERCULOUS PHTHISIS.			ENTERIC FEVER.		
	Total.	Posi- tive.	Nega- tive.	Total.	Posi- tive.	Nega- tive.	Total.	Posi- tive.	Nega- tive.
No. of Examina- tions ...	668	162	506	624	172	452	94	32	62

Milk Examinations :—

	Total	Found	Not Found
1. For tubercle bacilli	195	17*	178
2. Bacterial content of organisms other than tubercle bacilli (the colon bacillus being taken as the indicator.)			
Colon bacilli not found in 1 cc. or less ...			6
Colon bacilli found in 1 cc. but not in less			22
Colon bacilli found in 0·1 cc. but not in less			41
Colon bacilli found in 0·01 cc. but not in less			48
Colon bacilli found in 0·001 cc. but not in less			83

200

* Includes a second sample from the same source.

Water Examinations :—

Class I. (Colon bacilli not found in 100 cc. or less)	22
Class II. (Colon bacilli found in 100 cc. but not in less)	80
Class III. (Colon bacilli found in 10 cc. but not in less)	67
Class IV. (Colon bacilli found in 1 cc. but not in less)	27
	<hr/>
	196

Other Examinations :—

- a* Examination of persons convalescent from enteric fever or suspected to be carriers of the typhoid or paratyphoid bacilli ... 15
No typhoid or paratyphoid bacilli were found in these cases.
- b* Examination of the tissues of a person suspected to have died of "food poisoning." ... 1
Food poisoning bacilli were not found. The bacteriological findings suggested meningitis of meningococcal origin.
- c* Examination of a number of shaving brushes for the presence of anthrax bacilli ... 1
No anthrax bacilli were found.
- d* Determination of the species of diphtheroid organisms ... 2
- e* Blood culture from a case of fever of uncertain origin ... 1
Typhoid bacilli found.

H. J. HUTCHENS,
Bacteriologist.

*University of Durham College of Medicine,
13th March, 1917.*

REPORTS OF THE
VETERINARY OFFICER AND INSPECTOR
OF PROVISIONS, AND OF THE
INSPECTOR UNDER THE FOOD AND DRUGS
ACTS (INSPECTOR OF NUISANCES).

IV. FOOD.

BOVINE TUBERCULOSIS,
INSPECTION OF MEAT AND PROVISIONS,
INSPECTION OF FOOD AND DRUGS.

**BOVINE TUBERCULOSIS,
AND THE INSPECTION OF MEAT
AND PROVISIONS
AND FOOD AND DRUGS.**

TUBERCULOUS MILK—1916.

Sixteen samples were reported by the Bacteriologist to contain Tubercle Bacilli. Four of these were from the supplies of dealers in the City, and the remainder were from farms in Cumberland (5), Northumberland (5), Westmorland (1), and Durham (1).

In eleven of the herds examination of the cows led to the discovery of diseased or suspicious animals, which were isolated. In eight of these cases check samples from the milk of the remainder were obtained, and all these were reported not to contain Tubercle Bacilli. In two of the remaining cases, it was not possible to obtain check samples, as the respective farmers ceased to send milk to the City, and in the other instance—that of a dairyman in the City with one cow only—the animal went dry before a check could be taken.

In one instance no information could be obtained as to what action had been taken, the farmer's contract with the City dairy having expired.

Two of the tuberculous samples were from shops supplied by middlemen in the City, and in order to trace the affected herds, it was necessary to examine the milk from each of the

farms from which the milk was derived. In one case four farms were concerned, but all the samples from these were reported negative. In the second instance, the dealer received his supplies from no less than ten farms, samples from each of which were obtained. One of these milks was found tuberculous, and inquiry at the farm led to the discovery and isolation of a diseased cow.

One sample was from the supply of a combination of farmers. The source of the affected milk was not known, and the company therefore undertook veterinary examinations of the stock at the different farms. No sign of disease was found in any of the cows, however.

The remaining case was that of a sample which was taken in the street from a churn marked with a certain farmer's name. It was found, however, that this farmer did not supply milk to the company to whom the churn was addressed. Inquiry showed that one or other of two farmers had probably borrowed the churn. Samples from the supply of each of these were obtained, but both were reported as non-tuberculous.

INSPECTION OF MEAT AND PROVISIONS.

Report of the

Veterinary Officer, Inspector of Meat, etc.

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I have the pleasure to present this, my Tenth Annual Report, concerning food inspection within the city during the year ending 31st December, 1916.

MILK.

There are 30 dairymen registered within the city, who occupy 44 cowsheds on 32 premises, and possess a total of 536 milch-cows. During the year 226 visits have been made to the cowsheds and dairies for the purpose of inspecting the buildings as to the conditions of sanitation, etc. During the same period some 16 cases of disease amongst the cows were dealt with. Of these, four were found affected with tuberculosis, in two of which the disease had attacked the udder, causing the production of tuberculous milk. In the latter cases the milk gave positive evidence of the disease on microscopical examination.

MEAT, PROVISIONS, Etc.

During the year 1916, besides large quantities of offal and other foodstuffs, some $188\frac{1}{2}$ animal carcasses have been condemned within the city and destroyed as being unfit for human consumption, as compared with 221 in 1915 and $201\frac{1}{4}$ in 1914. Of the $188\frac{1}{2}$ carcasses, $107\frac{1}{2}$ (93 carcasses and 38 quarters of beef and 5 carcasses of pork) were condemned on account of tuberculosis. During the past ten years, on account of tuberculosis alone, exactly 1,000 animal carcasses (832 beef, 28 veal, 140 pork) and 143 quarters of beef have been condemned and destroyed within the city. In other words, the disease has rendered unfit for human consumption, meat, prepared within the city, to the value of between £13,000 and £14,000.

ANIMALS SLAUGHTERED WITHIN THE CITY.

During the year 1916, no fewer than 161,858 animals were slaughtered within the city and prepared for human consumption. They consisted of:—

Cattle	...	...	...	...	...	25,365
Horses	...	...	...	...	...	510
Calves	...	...	...	...	...	1,388
Sheep	...	...	...	...	...	113,087
Pigs	...	...	...	...	...	21,508

TOTAL 161,858

NUMBER OF VISITS AND INSPECTIONS OF PREMISES DURING THE YEAR 1916.

Slaughter Houses.	Wholesale and Retail Meat and Provision Shops.	Central Meat Markets.	Quay Fish Market.	Cold Stores.	Billets Military.	Wharves.	Goods Stations.
3,039	3,777	677	100	6	13	363	13

IMPORTED MEAT, Etc.

During the year under report, some 492 vessels carrying meat and other foodstuffs from Denmark, Norway, Holland, and other countries, as compared with 323 vessels in 1915, arrived at the Quayside. At the wharves and vessels alongside, 212 packages were opened and minute examination made in each case.

Regarding these visits, two were in response to official notices received from the Customs House in reference to imported food stuffs detained for inspection and certification.

Imported meat arriving within the city other than by vessel, is subjected to supervision chiefly at the wholesale establishments.

SLAUGHTER HOUSES.

During the year 1916 there were one hundred and six slaughter-houses (including one horse slaughtering establishment and one knacker's yard proper) licensed within the City. These comprise five groups, situate Dispensary Lane, Cattle Market, Benwell, Stepney and Byker Hill, besides several separate establishments in various parts of the City. The horse slaughtering establishment is conducted in precisely the same way as the other slaughtering establishments within the City, the horses being brought there alive, slaughtered,

and the carcasses dressed and afterwards removed to a properly conducted butcher's shop, where the meat is sold under declaration. During the year, from this establishment alone, over 500 such carcasses have been prepared for human consumption, the great demand being principally due to the presence of large numbers of Belgians within the surrounding districts.

During the past year over-crowding within the slaughter houses within the city has been greater than ever. This, with the attending evils, is inevitable, and, unfortunately, it will be impossible to alter these conditions until times of peace, when, no doubt, the Abattoir question will be dealt with. Until then meat inspection and the supervision of the slaughtering of animals and the preparation of carcasses can never approach being placed upon a proper basis. In the meantime, however, the best efforts are being put forth to cope with the work, whilst the butchers endeavour to carry on their weekly slaughtering under conditions—in some cases—absolutely abominable.

NEW ABATTOIRS FOR THE CITY.

At a special meeting of the Sanitary Committee, a scheme outlining "Modern Abattoirs and Markets combined," designed to meet the present and future requirements of the City and the allied trades concerned, was considered at length, the report and the principles of the whole subject being approved.

MILITARY DEPÔTS AND BILLETS.

Visits have been paid to the billets and stores within the City from time to time, in some instances at the request of officers commanding, the necessary inspections being made and advice given or assistance rendered whenever desired.

SHOPS AND CELLARS.

Premises wherein sausages and other foodstuffs are prepared, including those where military contracts are held, have been regularly visited.

DURING THE YEAR THE FOLLOWING HAVE BEEN LANDED AT THE QUAYSIDE:—

PORK.				OTHER GOODS.		
Sides of Bacon.	Sausage Skins.	Sausages Smoked.	Maws.	Tinned Meat.	No. of Packages Opened.	Detention Notices from Customs House.
	Casks.	Cases.	Casks.	Cases.		
118,235	74	50	12	500	212	2

CARCASSES, ETC., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION DURING THE YEAR, 1916.

	Carcasses.						Lungs.		Heart.	Kidneys	Livers.		Heads.	Tails.	Tripe.		Plucks.
	Horse.	Beef.	Veal.	Mutton	Pork.	Ox.	Pigs.	Ox.	Ox.	Ox.	Ox.	Sheep.	Ox.	Ox.	Ox.	Pigs.	Sheep.
Tuberculosis	93+38 qrs.	...	...	5	30	...	2	...	...	6	...	7	...	...	...	...
Swine Erysipelas...	1	...	...	...	...	...	...	...	...	...	...	...	...
Pyæmia	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Pleurisy	1	1	...	...	...	...	...	...	...	...	...	...
Pyrexia	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jaundice	1	...	...	...	...	...	...	...	...	...	...	...	...
Conjestion	1	1	1	3	...	...	...	...	...	...	...	...	...	...
Abscesses	7	...	...	...	4	2	...	...	...	...	...	...
Parasitic	1	...	...	...	...	...	...	...	...	...	...	...
Dropsy and Emaciation...	8	...	...	...	...	...	...	...	...	...	...	...	...	...
Imperfectly Bled	2	...	7	1	...	...	...	...	...	...	...	...	...	...	...	...
Traumatism	6 lbs.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Died in Transit	1	18	16	...	...	...	...	...	...	...	...	...	...	...	...
	lbs.			lbs.						lbs.	lbs.				lbs.	Casks.	
Decomposition ...	564	4 + 94 lbs.	14	4	58½	...	...	...	...	39½	36	44	6	200	2032	3	73

POULTRY, GAME, FISH, ETC., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION
DURING THE YEAR 1916.

Cause of Unfitness.	POULTRY AND GAME	FISH.		FRUIT AND VEGETABLES.	PROVISIONS.
Unsoundness and Decomposition	34 Ptarmigan.	SHELL FISH.	OTHER THAN SHELL FISH.	Baskets.	Hams ... 24
	110 Rabbits.		Lbs.	Black Currants 22½	Bacon (Shoulders) 91
		Mussels ... 1,764	Cod ... 1,820	Plums ... 30	Bacon (Rolls) 196
			Salmon ... 12	Tomatoes ... 1,034	Eggs 1,150
Unclean ...				Turnips ... 3	Condensed Milk 336
	...	...	Trout ...		Sausages ... 30

PROSECUTIONS.

For having deposited and exposed for sale, within a shop in the City, a carcass of diseased meat, the owner and occupier were each fined £1 and costs.

For having exposed for sale (and being in possession) within the Market, a diseased and emaciated sheep, intended for human consumption, a dealer and the owner were each fined £3.

I have the honour to be, Sir,

Your obedient Servant,

THOMAS PARKER, F.R.C.V.S.,

Town Hall,

Veterinary Officer,

Newcastle-on-Tyne,

Inspector of Meat, &c.

January 31st, 1917.

FOOD AND DRUGS ADULTERATION, Etc.

Total Samples.—The number of **samples** (of all kinds) obtained by the *Inspector of Nuisances* for analysis during the year was 1,279, against 1,249 in 1915, being an increase over any previous year. For details see page 128A.

Of this total, only 794 were submitted for analysis to the Public Analyst, the remainder being milk samples which, on being tested in the offices of the Health Department, appeared to be genuine.

Informal Samples.—All samples (included in the foregoing total) were collected “informally,” chiefly through the agency of hired persons.

Milk Samples.—The number of milk samples taken was 852; 88 of these were certified to be below the minimal limits fixed by the “Sale of Milk Regulations, 1901,” 2 being also artificially coloured with annatto.

Samples Not Genuine, etc.—The percentage of samples not genuine to the total number taken is 8·2 (compared with 8·0 for the previous year), and the percentage of non-genuine milk samples to the total number of milk samples obtained is 10·33 (as against 9·37 in 1915).

The total number of samples taken is at the rate of 4·6 per 1,000 of the population (estimated) of the City for the year 1916.

Milk Adulteration.—Of the 88 milk samples not genuine, 47 were deficient in milk-fat, 29 in non-fatty solids, and 12 in both.

The percentage of deficiency in fat varied from 1·6 to 28·3 (the average being 10·08), and in solids not fat from 1·0 to 31·4 (average 4·98).

Appeal Against Conviction.—In the case of a sample of milk deficient in fat to the extent of 18·3 per cent., the vendor (a local farmer) was convicted by the Justices and fined 40s., defendant subsequently appealing to the Quarter Sessions.

At the hearing of the appeal considerable expert evidence was adduced on both sides, and the learned Recorder, in giving judgment, stated that the weight of evidence was very evenly balanced. He, however, decided that the conviction must be sustained (with costs against the appellant). Whilst there was evidence of a want of proper care in the manipulation of the milk, it was not suggested that there had been any intention of fraud. The amount of penalty was therefore reduced to 10s.

Margarine Act, 1887.—38 samples of margarine (included in the foregoing total of 1,279) have been purchased and analysed. These were found to be genuine, except that all contained boric acid (as below). In five instances samples were delivered to the purchaser in paper not properly marked “Margarine,” whilst in three the bulk was exposed for sale not labelled. See page 129.

Margarine Warehouses.—98 visits have been made to the margarine warehouses. In one instance *all* the sides of the packages containing margarine were not marked. This was pointed out to the proprietor, who communicated with the senders, and the subsequent consignments were properly marked.

In all other cases the requirements of the law in this respect were fully complied with.

Preservatives in Food.—Of the total number of samples taken for analysis (1,279), only 47 (or 3·67 per cent.) were certified to contain preservative, the articles in question being—margarine (38) and cream (9).

The preservative in every case consisted of boric acid. In the margarine the quantity present did not exceed 0·5 per cent., whilst in the cream the amount varied from 0·31 to 0·42 per cent. In three instances the cream was not labelled in accordance with the Public Health (Milk and Cream) Regulations, 1912, and the consequent action taken is shewn on pages 129-30.

Samples taken for Analysis during the Year 1916.

ARTICLE.	No. of Samples obtained.			Result of Analysis.		Action Taken.			REMARKS.
	Formal.	Informal.	Total.	Genuine.	Not Genuine.	Prosecutions.	Convictions.	Cases Dismissed.	
New Milk	823	29	852	764	88	34	26	8	In 31 cases the vendors were cautioned (by order of the Sanitary Committee), and in the remaining 23 (of the 88 not genuine) no further action was taken, some of these being informal samples, in others deficiency slight, "appeal to Cow" samples, etc., etc. For action taken under Public Health (Milk and Cream) Regulations see separate Table. All contained "undeclared" preservative (boric acid) but in quantities below 0·5%. This contained a small proportion of apple tissue ("undeclared"). The vendor was cautioned. The 4 samples "not genuine" each contained a large proportion of chicory, but, as the "mixture" was declared, no further action was taken.
Butter	1	86	87	87	...	...	...	...
Cream	9	...	9	9	...	...	...	...
Condensed Milk ... ..	...	18	18	18	...	...	...	...
Margarine	5	33	38	38	...	...	...	...
Jams	6	4	10	10	...	...	...	...
Blackcurrant Jelly ... ..	...	1	1	...	1	...	...	...
Marmalade ... ..	...	1	1	1	...	...	...	...
Lard ... ..	...	40	40	40	...	...	...	...
Coffee	4	1	5	1	4	...	...	...
Coffee Mixture ... ..	...	1	1	1	...	...	...	...
Cocoa ... ..	...	1	1	1	...	...	...	...
Tea ... ..	...	4	4	4	...	...	...	...
Sugar ... ..	...	5	5	5	...	...	...	...
Bread ... ..	...	3	3	3	...	...	...	...
Flour ... ..	...	9	9	9	...	...	...	...
Self-raising Flour ... ..	...	5	5	5	...	...	...	...
Egg Powder ... ..	...	9	9	9	...	...	...	...
Baking Powder	1	19	20	18	2	1	...	1	3 of the samples counted as "genuine" contained compounds of arsenic, but within the limit suggested by the Royal Commission. The Local Government Board and the local wholesalers were duly communicated with. The 2 samples "not genuine" (from one vendor) were deficient in carbon dioxide 40% and 56% respectively. (the former being taken informally).
Cream of Tartar ... ..	...	7	7	7	...	...	...	...
"Cream of Tartar substitute"	...	8	8	2	6	...	...	...	These were taken for special analysis as to the presence of arsenic, which the 6 samples "not genuine" were found to contain in amounts varying from 0·028 to 0·42 grain per pound. Immediate action was taken in these cases by communication with the Local Government Board and with the local wholesalers.
Bi-carbonate of Soda ... ..	...	1	1	1	...	...	...	...
Carbonate of Magnesia ... ..	...	1	1	1	...	...	...	...
Fruit Cake ... ..	...	3	3	3	...	...	...	...
Sago ... ..	...	1	1	1	...	...	...	...
Ground Rice ... ..	...	13	13	13	...	...	...	...
Corn Flour ... ..	...	6	6	6	...	...	...	...
Senolina ... ..	...	6	6	6	...	...	...	...
Tapioca ... ..	...	1	1	1	...	...	...	...
Farola ... ..	...	1	1	1	...	...	...	...
Rice ... ..	...	2	2	2	...	...	...	...
Ground Ginger ... ..	...	4	4	4	...	...	...	...
Ground Almonds ... ..	...	5	5	5	...	...	...	...
Vinegar ... ..	...	3	3	3	...	...	...	...
Golden Syrup ... ..	...	1	1	1	...	...	...	...	The sample "not genuine" (taken informally) contained carbonate, instead of calcined magnesia, and a formal sample was therefore obtained (in 1917). This shewed a similar result, but was so "declared" on the label, and no further action was taken.
Pepper ... ..	...	12	12	12	...	...	...	...
Mustard ... ..	...	8	8	8	...	...	...	...	One of these contained a trace of arsenic, and the fact was duly communicated to the Local Government Board. The tartaric acid in question formed one of the ingredients of a certain brand of baking powder which had previously been analysed and found to contain compounds of arsenic.
Arrowroot ... ..	...	4	4	4	...	...	...	...
Cheese ... ..	...	1	1	1	...	...	...	...
Curry Powder ... ..	...	2	2	2	...	...	...	...
Gregory Powder ... ..	...	4	4	3	1	...	...	...
Sweet Spirits of Nitre ... ..	...	5	5	5	...	...	...	...
Tartaric Acid ... ..	...	10	10	10	...	...	...	...
Tincture of Rhubarb ... ..	...	5	5	5	...	...	...	...
Syrup of Rhubarb ... ..	...	6	6	6	...	...	...	...
Camphorated Oil	2	6	8	6	2	...	...	...	The 2 samples "not genuine" were purchased informally. Formal samples were subsequently obtained, and these proved to be genuine.
Olive Oil ... ..	...	4	4	4	...	...	...	...
Glycerine ... ..	...	1	1	1	...	...	...	...
Paregoric ... ..	...	6	6	6	...	...	...	...
White Precipitate Ointment ... ..	...	4	4	4	...	...	...	...
Rum	3	...	3	3	...	...	...	...
Whisky	3	...	3	3	...	...	...	...
Gin	3	...	3	3	...	...	...	...
Beer	8	...	8	8	...	...	...	...	5 of these contained compounds of arsenic (but within the limit suggested by the Royal Commission). Immediate action was taken by communication with the Local Government Board and with the brewers concerned.
"Lemon Drink" ... ..	...	1	1	...	1	...	...	...
TOTALS	868	411	1,279	1,174	105	35	26	9	

Included in the above are:—

28 "Appeal to Cow" samples (taken at the farm or byre, after witnessing the milking operations).

19 samples taken "in course of delivery" (mostly at railway stations).

42 samples collected from the supplies at military billets or depôts.

Total amount of penalties obtained (including those in respect of "Offences other than Adulteration"—see separate Table) £47. 5s. 0d.



FOOD AND DRUGS ADULTERATION ACTS—*Continued.***Action taken with respect to Offences other than Adulteration.**

Offence.	No. of Cases.	Proceedings taken, etc.
<p><i>Margarine Act, 1887, Sec. 6.</i></p> <p>Margarine delivered to purchaser in paper not properly marked "Margarine."</p> <p>(Samples Nos. 852, 855, 1,078 1,080 and 1,085).</p>	5	<p>The vendors of samples Nos. 852, 1,078, 1,080 and 1,085, were summoned. With regard to the three first mentioned, fines of 10/-, 5/- and 5/-, respectively, were imposed, the case <i>re</i> No. 1,085 being dismissed on payment of costs.</p> <p>The vendor of No. 855 was cautioned.</p>
<p>Margarine exposed for sale not labelled.</p> <p>(Samples Nos. 852, 855 and 1,078).</p>	3	<p>Summonses were issued in the case of samples Nos. 852 and 1,078, the vendors being fined 20/- and 5/- respectively. In the case of No. 855 the vendor was cautioned.</p>
<p><i>Sale of Food and Drugs Act, 1899, Sec. 9.</i></p> <p>Names and addresses of vendors not properly inscribed on their milk-cans or vehicles.</p>	2	<p>Offenders cautioned.</p>
Total ...	10	Amount of Penalties, £2/5/-.

The Public Health (Milk and Cream) Regulations, 1912.

LOCAL GOVERNMENT BOARD TABLE.

1.—Milk and Cream not sold as Preserved Cream.

	(a) Number of samples examined for the presence of a preservative.	(b) Number in which a preservative was reported to be present.
Milk ...	381	None.
Cream ...	1	1.
		<p>In this instance (sample No. 894), there was no "declaration" whatever.</p> <p>The vendor was cautioned by order of the Sanitary Committee.</p>

2.—Cream sold as Preserved Cream.

(a)	Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct.					
	(i.)	Correct statements made	...	...	...	...
	(ii.)	Statement incorrect	...	...	...	—
(b)	Determination of milk-fat in cream sold as preserved cream.					
	(i.)	Above 35 per cent.	...	...	...	7
	(ii.)	Below 35 per cent.	...	...	...	—
	(iii.)	35 per cent.	...	...	...	1
(c)	Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V. (1) and the provision in Article V. (2) of the Regulations have not been observed					2
(d)	Particulars of each case in which the Regulations have not been complied with, and action taken.					

In two instances (samples Nos. 895 and 900) there was no label attached to the purchaser's jug, and, in the latter, the vessel in which the cream was stored was also not labelled.

In both cases the vendor was cautioned by order of the Sanitary Committee.

3.—Thickening substances.—Any evidence of their addition to cream or to preserved cream. Action taken where found ... None

4.—Other observations, if any—

All of the samples referred to in this return were also taken under the Sale of Food and Drugs Acts, and are therefore included in the separate Reports under those Acts.

Percentage of Preservative in samples of Cream.

The percentage of boric acid found in the 9 samples of Cream under report was as under :—

No. of Sample.	Cream not sold as Preserved Cream.	Cream sold as Preserved Cream.	REMARKS.
893		0·41	The percentage indicated on the Statutory label was "Not exceeding 0·5 per cent." (excepting in the case of sample No. 894, where the presence of the preservative was not declared at all).
894	0·36		
895		0·42	
896		0·35	
897		0·35	
898		0·38	
899		0·31	
900		0·32	
901		0·36	

BACTERIAL IMPURITY OF MILK AND WATER.

Milk.—195 samples were obtained and examined by the Bacteriologist for presence of tubercle bacilli, which were found in 17, or 8·7 per cent.

Action taken is described on pages 119 and 120.

200 samples were obtained and submitted for examination for presence of evidence of excremental pollution, which was found to an undesirable degree in 83, or 41·5 per cent. The vendors and producers were communicated with and warned, further samples being taken in each case.

Water.—196 samples were collected from all parts of the City, and examined for the presence of *bacillus coli*.

The results are described fully on page 115.

CONDITION OF PREMISES ON WHICH FOOD IS PREPARED.

Bakehouses.—The number of bakehouses in the City is 248, comprising 18 factories, 110 workshops, and 120 domestic bakehouses.

Factory bakehouses are under the jurisdiction of His Majesty's Inspector of Factories.

The workshop bakehouses, which are under the supervision of the Health Department, have been systematically inspected, and the statutory limewashing, twice a year, enforced.

Under local powers no room in which baking is done is allowed to be used as a sleeping apartment, and, in the inspection of bakehouses, any contravention in this respect is immediately dealt with.

Restaurant Kitchens.—There are 82 kitchens of restaurants, cafés, and dining-rooms in the City. These are visited as to

their general sanitary condition and to ensure the carrying out of cleansing and limewashing as often as is requisite for the purpose of maintaining these places in a wholesome condition.

Fried Fish Shops.—The number of these shops on the register at the end of the year was 114, a decrease of 6 as compared with the previous year. The more definite control obtained over the conduct of this business since its declaration as an “offensive trade,” continues to be of great advantage in inspecting and dealing with such premises.

Having regard to the nature of the business, it is usually found to be conducted with a minimum of nuisance.

Ice-Creameries (including Retail Shops.)—The number of these shews a slight decrease during the year (viz. from 170 to 161). The premises, which are kept under regular supervision, are, as a rule, maintained in good order, although those of the lower class still demand constant attention.

General Shops from which Milk is Sold.—There were 737 such shops on the register at the end of 1916 (a decrease of 27 as compared with the previous year). Special attention has again been given to the covering of milk vessels and the adoption of other necessary measures with a view to safeguarding the milk, as far as possible, against contamination.

As indicated in previous reports, many of the smaller “general” shops are not suitably adapted for the sale of milk (being frequently dark, crowded, and ill-ventilated), and, in such cases, it is practically impossible, even with the greatest care, to protect the milk properly from possible contamination or pollution, particularly in cases where it is sold in con-

junction with such commodities as paraffin oil, fish, coals, etc. There will always be room for improvement in this direction until the sale of milk can be confined to shops dealing solely with dairy produce.

In three cases dealt with in the course of the year, the conditions in this respect were especially bad. In each of these instances the sale of milk was discontinued on representation being made to the proprietors.

During the year a circular letter was issued to keepers of milkshops calling attention to the importance of exercising the greatest possible care in the storing of milk intended for sale, and of observing absolute cleanliness in dealing with such milk, also detailing certain points to which special attention should be paid in this respect.

The decrease in the number of fried fish shops, ice-cream shops, and general milk shops is mainly due to conditions in consequence of the war, involving high price of materials, scarcity of supplies, proprietors being called to the colours, etc.

(Signed) Wm. HUDSPETH, .

*Inspector under the
Food and Drugs Acts.*

REPORT OF THE
INSPECTOR OF NUISANCES.

V. THE HOME AND THE
WORKSHOP.

NUISANCES, HOUSING, FACTORIES AND
WORKSHOPS, &c.

**NUISANCES, HOUSING,
 FACTORIES AND WORKSHOPS,
 ETC.**

*The following is the
 Report of the Inspector of Nuisances.*

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I beg to present to you my ninth report upon the work done in my section of the Health Department, viz., that for the year ended 31st December, 1916, which, together with the section on Food and Drugs Adulteration, etc., is as follows :—

NUISANCE ABATEMENT.

The war has unfortunately continued throughout the year, and has not been without its effect upon the work and the *personnel* of the Health Department.

Six members of the regular inspecting staff are at present serving with His Majesty's forces, and another is on Government work, their places being temporarily filled by other men ineligible for military service.

The continuance of the war and the consequent calling of more and more men to the colours has resulted in a great shortage of labour in the building trades, which has rendered it very difficult to get structural improvements executed, and a considerable portion of the time of the Inspectors has been taken up with re-visits to premises to learn whether works ordered had been carried out.

For the most part, owners have shewn a commendable willingness to comply with the requirements of the notices served, but in many cases they have not been able to do so owing to their inability to procure the necessary labour, coupled with the high price of materials, etc.

In view of the difficulties referred to, the systematic inspection under the Housing, Town Planning, etc., Act, has been suspended for the time being.

Whilst there has been a diminution in the amount of work of a structural nature accomplished during the year, the Assistant Inspectors have been able to devote more time than is ordinarily possible to the inspection of the poorer class dwellings, with a view to the maintenance of general cleanliness and freedom from nuisance. The table on page 145 shews a considerable increase in the number of inspections from complaints made at the office, visits to learn if works ordered were in progress (chiefly occasioned by such work not being so readily carried out for reasons already referred to), inspections of tenement holdings and common yards and courts in the worst localities, etc.

The amount of clerical work involved has also increased rather than diminished, as will be seen from the following numbers of notices and other documents issued during the year, viz. :—

Total number of notices served—	Informal	8,643
	Statutory	184—8,827
Number of written letters sent out	...	2,525
Number of circular letters sent out	...	1,600
	Total	12,952

In 1915 8,316 notices were served and 2,383 written letters sent out.

Magisterial Proceedings.—During the year, legal proceedings were only rendered necessary in 19 instances, which may again be considered very satisfactory, having regard to the difficulties previously mentioned. This has been due in a great measure to the practice of communicating with the persons responsible by letter or by personal interview in cases where the work required was not at once carried out.

Military.—As previously since the outbreak of the war, the inspecting staff have—in addition to their ordinary duties—been co-operating with the military authorities in the

inspection of billets, horse lines, etc. The officer referred to in former reports as being specially engaged on this class of work, continues to devote almost the whole of his time to this particular duty, his inspections being supplemented by periodical visits by the district inspectors.

A total of 2,389 inspections (both routine and detailed) of the billeting stations were made during the year.

In this connection, the Inspector has pleasure in recording that the military authorities have been at all times ready to work in complete harmony with the officers of the Health Department, courteously receiving any suggestion made as to improvements, and have maintained the various billets in a state of general sanitary efficiency.

In addition to the foregoing, and in accordance with a general instruction from the Local Government Board as to the supervision of foodstuffs and their preparation for the troops, 42 samples were collected, for analysis, from the supplies at the kitchens in connection with military billets and depôts. (These are included in the return as to "Food and Drugs" samples on p. 127).

SUMMARY OF INSPECTIONS OF BILLETS, YEAR 1916.

Special Inspector's Visits	...	...	...	...	...	1,797
District	„	„	...	...	...	592
Billets measured for Overcrowding	...	...	...	...	...	88
Hall and Rooms contained in above	...	...	...	...	...	822
Billets found Overcrowded	...	...	...	...	...	23
Rooms	„	„	...	...	...	234
„	„	Condemned	...	...	...	19
Unsuitable sleeping places (w.c.'s, etc.)	...	...	...	...	...	20
Neglect of, and defective means of, ventilation	...	...	...	...	...	12
Inadequate means of ablution	...	...	...	...	...	9
Insufficient W.C. Accommodation	...	...	...	...	...	26
Obstructed and Defective W.C. Drains and Cesspools	...	...	...	...	...	71
Accummulation of Refuse	...	...	...	...	...	112
Other defects	...	...	...	...	...	27
Billet measured for Munitions Workers	...	...	...	...	...	1
Rooms in above...	...	...	...	...	...	38
Munition Workers' Hutments Inspected	...	...	...	...	...	20
Defects in above...	...	...	...	...	...	6
Munition Workers' Dining Rooms Inspected	...	...	...	...	...	16
Defects in above...	...	...	...	...	...	1
						<hr/> 3,934

USE OF PUBLIC SANITARY CONVENIENCES BY SOLDIERS.

The arrangements made in January of the previous year, for troops who were fed in the various restaurants round the centre of the City to have free use of the public sanitary conveniences, still continues.

CONVERSIONS OF DRY CLOSETS.

104 privies have been removed and replaced by water closets, against 347 in the previous year. Of this total (104) 61 were pail closets, 4 midden privies (in Benwell), and 39 "cell" privies (all in the districts of Benwell and Walker). In all but 2 instances this work was accomplished without having to resort to legal proceedings. In addition to the numbers previously mentioned, 51 "dry" ashpits have been removed, and replaced by portable galvanized iron dustbins.

The practice of supplying the first dustbins free of charge as an inducement towards the abolition of ashpits and privies has been continued, 203 such dustbins having been given during the year.

The following table, prepared by the *Medical Officer of Health*, shows the incidence of Enteric Fever to relation to the proportion of dry and water closets in the City, over a number of years :—

ENTERIC FEVER IN RELATION TO THE ELIMINATION OF THE CONSERVANCY
SYSTEM OF DISPOSAL OF EXCRETA DURING THE LAST 26 YEARS

YEAR.	CITY ENGINEER'S CENSUS OF		ENTERIC FEVER.	
	Number of Dry Closets in the City.	Number of Water Closets in the City.	No. of Cases.	Attack Rate per 1000 population.
1891	8,244	21,966	134	0·72
1892	8,640	24,749	97	0·51
1893	8,566	25,822	141	0·73
1894	8,515	26,997	164	0·84
1895	8,661	27,848	213	1·07
1896	8,867	28,977	176	0·87
1897	8,982	29,931	138	0·68
1898	9,317	31,158	307	1·48
1899	7,689	33,030	133	0·63
1900	7,966	33,708	79	0·37
1901	7,956	34,408	76	0·35
1902	7,863	35,323	57	0·26
1903	7,613	36,661	75	0·35
1904	7,313	37,985	30	0·14
1905	9,741*	42,175	50	0·20
1906	9,501	43,348	70	0·27
1907	9,237	43,460	66	0·25
1908	9,109	44,803	111	0·42
1909	8,781	45,468	74	0·28
1910	8,428	46,458	63	0·24
1911	7,959	47,681	87	0·33
1912	7,166	48,788	91	0·34
1913	6,332	49,397	124	0·46
1914	5,999	49,957	102	0·38
1915	5,528	51,466	100	0·36
1916	5,343	51,651	76	0·27

* The large increase in the number of dry closets in 1905 is due to the incorporation of **Walker and Benwell** in November, 1904, these districts having a privy-box system.

The proportion of Dry Closets to Water Closets has thus fallen from 1 to 2·66 in 1891 to 1 to 9·7 in 1916.

ATMOSPHERIC POLLUTION.

Smoke Inspections.—The following are particulars as to Smoke observations made :—

No. of chimneys watched.	No. of observations made.	No. of chimneys from which black smoke issued in such quantity as to be a nuisance for periods of over 5 minutes in the aggregate during one hour.	No. of times when smoke issued so as to be a nuisance.	No. of notices served for the abatement of smoke nuisances.		No. of Prosecutions.
				Informal.	Statutory	
26	111	12	15	11	...	...

Atmospheric Pollution Records.—An observation station, under the immediate control of the City Analyst, is placed on an open site between City Road and Wall Knoll, in connection with similar stations in other towns, the monthly results from all of which are compared and published by the (National) Committee for the Investigation of Atmospheric Pollution.

The monthly readings from the Newcastle station are appended :—

ATMOSPHERIC POLLUTION.—NEWCASTLE RECORDS, 1916.

MONTH.		RAINFALL. (Millimeters.)	METRIC TONS OF DEPOSIT PER SQUARE KILOMETER PER MONTH.								
			Insoluble Matter.			Soluble Matter.		TOTAL SOLIDS.	Included in Soluble Matter.		
			Tar.	Other Carbonaceous.	Ash.	Loss on Ignition.	Ash.		Sulphate as SO ₄	Chlorine Cl.	Ammonia NH ₃
January ...	...	23	0·15	2·44	4·36	1·12	2·52	10·59	1·28	0·22	0·10
February ...	...	68	0·35	4·25	6·52	2·97	5·53	19·62	2·38	0·96	0·13
March ...	...	86	0·37	3·93	7·25	2·40	5·65	19·60	2·61	1·52	0·18
April ...	...	32	0·21	1·81	7·28	1·28	3·64	14·22	1·56	0·21	0·06
May ...	...	75	0·16	5·34	10·09	2·68	4·91	23·20	3·00	0·50	0·11
June ...	...	50	0·49	4·97	13·26	1·50	5·81	26·04	2·50	0·34	0·06
*July ...	...	...	...	...	...	...	...	...	...	...	...
August ...	...	67	0·28	5·10	10·14	2·83	5·80	24·15	2·59	0·72	0·13
September ...	...	34	0·30	3·71	6·84	0·95	3·71	15·51	1·73	0·24	0·66
October ...	...	62	0·36	5·78	15·92	5·61	14·45	42·12	4·51	5·30	0·15
November ...	...	78	0·14	5·15	13·11	3·58	8·25	30·23	2·46	2·76	0·11
December ...	...	95	0·37	5·13	11·59	2·08	4·17	23·34	2·62	0·50	0·11
TOTAL, 11 months		670	3·18	47·61	106·36	27·00	64·44	248·62	27·24	13·27	1·80
Average per month		60·9	0·29	4·33	9·67	2·45	5·86	22·60	2·48	1·21	0·16

* Results lost through accident.

An average of 22.60 metric tons of total solids per square kilometer per month is equivalent to 21 cwt. per acre per annum, or 694 tons per square mile.

OFFENSIVE TRADES.

The following are the numbers and classes of offensive trades carried on within the City :—

Specified in Section 112, Public Health Act, 1875 Blood Boiler (0), Bone Boilers (4), Fellmonger (0), Soap Boilers (2), Tallow Melter (0), Tripe Boilers, (8).

Declared by Local Authority, confirmed by Local Government Board (in accordance with Section 51, Public Health Acts Amendment Act, 1907). Rag and Bone Dealers (28), Dealers in Hides and Skins (4), Dealer in blood or other putrescible animal products (1), Blood Dryer (0), Fat Melter or Fat Extractor (3), Glue and Size Makers (3), Gut Scrapers (3), Fish Friers (114).

As compared with the previous year, this is an increase of 3 rag and bone dealers and a reduction of 6 fish friers.

The premises in question are systematically inspected, and any nuisance found immediately dealt with.

In two instances, persons have commenced to store rags on premises without the consent of the Local Authority.

In each case the place was unsuitable for the business, which was immediately discontinued on the proprietors being communicated with.

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES WERE SERVED DURING 1916.

Foul privies and ashpits (to replace with water-closets)...	{ Privies Ashpits	3 3
Defective "cell" privies in Benwell and Walker (to replace with water-closets)		52
Foul or defective ashpits not connected with privies (to remove and provide dust bins, or to provide doors and coverings)		83
Insufficient water-closet or privy accommodation (additional water-closets ordered)		31
Defective or insufficient dust bins (to provide new or additional) ..		2,024
Defective water-closets (to repair)		895
Water-closets without water supply (to provide water)		83
Choked water-closets (to cleanse—mostly served on tenants)		274
Dirty water-closets (to cleanse—all served on tenants)		250
Defective pail-closets (to repair, provide new pails, etc.)		232
Foul pail-closets (to replace with water-closets)		213
Dirty privies (to cleanse—all served on tenants)		24
Defective drains (to repair, or construct new drains)		243
Choked drains, etc. (to cleanse)		1,318
Defective or choked sinks, waste pipes, etc. (to repair or cleanse) ...		401
Want of scullery sinks		5
Defective or choked soil-pipes, vent shafts, etc. (to repair or cleanse)		45
Sink waste-pipes not trapped, etc.		36
Want of or defective pavement in yards and passages (to provide or repair)		205
Carried forward		6,420

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES
WERE SERVED DURING 1916.—*Continued.*

Brought forward	...	...	...	...	6,420
Dirty rooms (to be cleansed)	...	...	...	...	104
Damp rooms	...	...	...	...	66
Overcrowding (to abate)	...	...	...	...	74
Dirty yards, passages, stairs, etc. (to cleanse)	...	...	...	...	673
Animals, pigeons, and fowls improperly kept	...	...	...	...	66
Offensive accumulations (to remove)	...	...	...	...	187
Accumulations of manure (to periodically remove)...	...	...	...	...	99
Want of or defective manure pits (to provide or repair)	...	...	...	...	9
Broken roofs and want of or defective or choked spouting (to repair, provide, or cleanse)...	...	...	...	...	570
Want of water (to provide supply)	...	...	...	...	165
Smoke nuisances (to abate)	...	...	...	...	11
Want of proper ventilation to rooms (including broken window cords in tenements)	...	...	...	...	95
Want of sufficient light to rooms (to provide additional means of)	...	...	...	...	2
Defective waste water-closets (to remove, and provide w.c's with flushing cisterns, etc.)	...	...	...	...	1
Defects in Council Schools	{	Defective drains (including defects in chambers, soil pipes, and vent shafts)	...	...	1
		Choked drains	...	...	2
		Defective w.c's	...	...	2
		Ventilation inefficient	...	...	1
		Rain-spouts defective	...	...	1
		Dustbins required	...	...	9
Structural defects in houses (broken plaster, floors, stairs, etc.)	...	...	...	...	256
Dirty cisterns supplying water to sinks, etc.	...	...	...	...	6
Insufficient means of drainage	...	...	...	...	4
Slop water or excreta thrown into privy pails, ash-tubs or dustbins...	...	...	...	...	19
Filth thrown on yards, streets, etc.	...	...	...	...	31
Ice-Creameries—floor broken	...	...	...	...	1
Stables	{	Unsuitable or defective	...	...	2
		Dirty conditions	...	...	3
Piggeries	{	Unsuitable or defective	...	...	5
		Dirty conditions	...	...	6
Milk Shops—Milk stored for sale under improper conditions, vessels not covered, etc.	...	...	...	...	13
Urinals, in connection with public houses, defective, or dirty	...	...	...	...	4
Bakehouses—Dirty condition of	...	...	...	...	29
Caravans (Sanitary arrangements inadequate)	...	...	...	...	1
Offensive Trade (storage of rags) established without consent	...	...	...	...	2
Unclassified minor nuisances (to abate)	...	...	...	...	103
Total	...	...	...	...	9,046

DETAILS RELATING TO CERTAIN WORKS CARRIED OUT IN THE ABATEMENT OF
NUISANCES AND TO INSPECTIONS MADE DURING 1916.

Length (in yards) of old drains removed	1,155
„ „ new „ constructed	1,584
New trapped gullies provided to drains	197
Combined privies and ashpits removed { privies	*4
„ { ashpits	*3
Cell-privies removed (in Benwell and Walker Districts)	39
Pail-closets removed	61
Defective water-closets removed (including waste-water closets, etc.)	38
Water-closets provided (in place of the foregoing privies and defective water-closets removed, also in 14 cases where the accommodation was previously insufficient)	155
Dry ashpits removed and replaced by galvanized iron dustbins ...	51
Dustbins substituted for dry ash-pits where water-closets existed, and provided in cases where pail-closets, &c., have been replaced by water-closets	†203
No. of drains tested	619
No. of tests of above drains made by smoke and water	753
No. of inspections from complaints made at office (verbally or by letter)	1,829
No. of tenement inspections made	19,396
No. of contraventions of Tenement Bye-laws for which notices have been served to obtain remedy	§1,869
Inspections of houses made from complaints received outdoors or nuisances discovered in the districts, including a large number of minor nuisances, such as choked drains and dirty yards, the abatement of which was accomplished at the time of visit, and without legal notice	7,584
Inspections to learn if works ordered were in progress	13,379
Supervisions of work in progress	2,936
Common yards and courts in the worst localities specially visited on Friday afternoons and Saturday mornings to obtain weekly cleansing of same	34,556
Inspections after infectious disease	1,067
Inspections of milk shops and ice creameries (including retail shops)	1,770
„ bakehouses	†961
„ offensive trades	1,292
„ wholesale margarine warehouses	98
„ as to limewashing of tenements	8,025
„ of schools	117
Inspections under the Housing, Town Planning, etc. Act, 1909 (to learn if works ordered had been carried out	72
Inspections of Military Billeting Stations... ..	2,389

* Some ashpits have more than one privy attached.

† Free dust bins given by Corporation in each case.

§ In addition to this number, the District Inspectors have daily had premises cleansed on verbal order.

† Including 486 inspections made under the Factory and Workshop Acts by the Assistant Inspectors of Workshops.

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE
MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC.,
DURING THE YEAR 1916.

Nature of Complaint.	No. of Cases.	How disposed of.
<i>Public Health Acts :—</i>		
Defective drains	4	Drains repaired or relaid without the summonses being applied for.
Choked drains	2	Drains cleared without the summonses being applied for.
Defective roofs	2	Roofs repaired without the summonses being applied for.
Defective spouting	2	Spouting repaired without the summonses being applied for.
Defective yard pavement	1	Owner summoned. Fined 5/.
Manure on stable premises not removed as often as necessary	1	Manure subsequently removed without the summonses being applied for.
<i>Public Health Act, 1875, Sec. 36, and Newcastle-upon-Tyne Improvement Act, 1892, Sec. 53 :—</i>		
Houses without sufficient water closets, etc. (foul privies, to replace by water closets)	13	In 2 instances summonses were issued and afterwards withdrawn on waterclosets being provided and costs paid by defendant. In the remaining 11 cases, w.c's were substituted without the summonses being applied for.
Do. (Defective water-closets to be repaired)	2	In 1 case the owner was summoned, and fined 20/-, together with 6d. per day for 40 days of default, (or £2 in all). The work was subsequently carried out. In the other instance, the w.c. was repaired without the summons being applied for.
<i>Newcastle-upon-Tyne Corporation Act, 1911, Sec. 55 :—</i>		
Want of proper dustbins for storage of house refuse	10	Dustbins provided without the summonses being applied for.
<i>Carried forward ...</i>	37	

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE
MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC.,
DURING THE YEAR 1916.—(Continued).

Nature of Complaint.	No. of Cases.	How disposed of.
<i>Brought forward ...</i>	37	
<i>Tenement Bye-laws:—</i>		
Contravention of Bye-law 18 (w.c's in dirty condition)	2	Conveniences cleansed without the summonses being applied for.
Contravention of Bye-law 27 (passages and stairs in dirty condition)	2	Passages and stairs cleansed without the summonses being applied for.
Contravention of Bye-law 31 (limewashing of yards, passages, staircases, &c.)	13	Summonses issued and afterwards withdrawn on the work being done and costs paid by defendants.
Contravention of Bye-law 32 (rooms in dirty condition)	1	Room cleansed without the summons being applied for.
Contravention of Bye-law 34 (want of water supply for domestic purposes)	6	In 2 instances summonses were issued and afterwards withdrawn on the water being supplied and costs paid by defendants. In the remaining 4 cases the water was put on without the summonses being applied for.
<i>Total ...</i>	61	Amount of Penalties—£2 5s. 0d.

HOUSING.

According to the census returns of 1911, there were in Newcastle 32,920 houses inhabited by 55,570 separate families, with the high average of 8·13 persons per house.

Newcastle dwellings consist largely of "flats," an upstairs and a downstairs, with three to five rooms in each. The flats generally have separate entrances from the front street, and may either have separate yards, or one yard common to two flats, each having a distinct entrance to the yard.

32 per cent. of the housing accommodation in the City consists of one and two room holdings, in which live 28 per cent. of the population.

In the more ancient parts of the town, notably along the riverside, there is still a considerable amount of old property, mostly let in tenements. There are few "houses let in lodgings," dealings being practically always between landlord and occupier, without the intervention of any "tenant" as defined in the model bye-laws. The tenements in these houses are relatively low rented, single rooms ordinarily being let at an average of 2/- per week, two rooms at about 3/6, and three rooms at 4/3.

The City Engineer makes a quarterly return of empty houses in the City, and a perusal of these reports is instructive, as showing the growing scarcity of accommodation.

CENSUS OF EMPTY HOUSES, 1912-1916.

Date of Census	Nov., 1912.	Feb., 1913.	May, 1913.	Aug., 1913.	Nov., 1913.	Feb., 1914.	May, 1914.	Aug., 1914.	Nov., 1914.	Feb., 1915.	May, 1915	Aug., 1915.	Nov., 1915.	Feb., 1916.	May, 1916.	Aug, 1916.	Nov., 1916.
Self-Contained...	306	311	270	253	172	170	141	137	108	99	100	80	82	77	82	65	52
Flats (each counted as a separate house)	903	775	609	291	185	121	64	75	74	21	16	8	4	5	9	1	4
House and Shop combined	68	79	53	58	64	32	38	29	29	32	15	11	4	3	6	2	3
Tenemented Houses ...	28	41	48	20	24	13	3	3	1	...	...	...	...	...	...	...	...
Doubtful if fit for occupation	58	61	48	43	49	51	68	63	66	66	67	76	60	66	63	63	59
TOTAL EMPTYES ...	1,363	1,267	1,028	665	494	387	314	307	278	218	198	175	150	151	160	131	118

The details of the latest, the census taken on 21st February, 1917, show the ward distribution of the empty premises.

EMPTY HOUSES, FEBRUARY, 1917.

Ward.	Self-contained Houses	Flats.	Houses and Shops combined.	Tene-mented Houses.	Doubtful if fit for habitation.	Total.
St. Nicholas' ...	...	...	...	...	...	...
All Saints' ...	...	...	...	...	...	...
St. Andrew's ...	3	...	1	...	...	4
St. Thomas' ...	19	...	...	...	...	19
Jesmond ...	20	...	...	...	...	20
St. John's ...	...	1	...	...	...	1
Stephenson ...	...	...	...	...	...	...
Armstrong ...	...	...	...	...	...	...
Elswick ...	2	...	...	...	...	2
Westgate ..	1	...	...	...	...	1
Arthur's Hill ...	1	...	2	...	...	3
Dene ...	1	...	...	...	...	1
Heaton ...	...	...	...	...	62	62
Byker ...	...	...	1	...	...	1
St. Lawrence ...	...	1	...	...	...	1
St. Anthony's ...	1	3	...	...	...	4
Benwell ...	...	...	...	...	...	...
Fenham ...	1	...	...	...	...	1
Walker ...	1	...	1	...	...	2
TOTAL ...	50	5	5	...	62	122

Thus, there is not a single empty house in St. Nicholas', All Saints', Stephenson, Armstrong, and Benwell, only one in Fenham, St. John's, Westgate, Dene, Byker, and St. Lawrence, two in Elswick and Walker, and four in St. Andrew's and St. Anthony's, all, with the exception of Dene and Fenham, almost entirely working-class wards, and it is in these very wards that there is most insanitary property, which, under present conditions, it is practically impossible to close, as existing tenants cannot get houses elsewhere.

To illustrate further this condition of house famine, the following sample advertisements are selected at random from many scores of similar ones appearing daily during 1916 in the local evening papers :—

Flat Wanted by young couple ; three rooms ; Newcastle, Heaton, or Byker ; £1 offered.—Write Box E 52, Chronicle Office.

Flat, 3 or 4 rooms, Wanted ; young couple, Heaton or West End ; bonus given.—Write Box E 26, Chronicle Office.

Flat, or small self-contained House, Wanted in Newcastle or district ; good bonus given.—Write Box H 46, Chronicle Office.

House, small or Flat Wanted, West End preferred ; careful tenant ; no family ; bonus £5.—Write Box 271, Chronicle Office.

Flat, 5 or 6 rooms, Wanted, Heaton ; **£10 bonus given.**—Write Box S 30, Chronicle Office.

Five Pounds Premium Offered for Flat or small Self-contained House in good district of Newcastle.—Address letters Box C 45, Chronicle Office.

Lady will give Bonus of £2 2s. to anyone who can find her a suitable unfurnished Flat, 3-roomed, downstairs preferred, in or near Newcastle, rent about 10s. per week.—Write Box M 204, Chronicle Office.

Bonus (£3) given to anyone securing 3, 4 or 5 roomed House or Flat, if suitable ; Benwell, Scotswood, or Lemington preferred ; good references.—Write Box E 19, Chronicle Office.

Wanted, in fact, the barest necessities of accommodation, in return for which is offered a big bonus, a high rent, and guarantees against "incumbrances"! The appalling scarcity of last year is even greater now. In the occupied houses overcrowding is rife, but the inspectors are obliged to ignore this, unless particularly gross instances come under their notice. A difficulty of course always arises, in that there is no defined standard of healthy living conditions, so that for general purposes the extremely low minima of the Model Byelaws as to houses let in lodgings are adopted. Nor does the question of decency and separation of the sexes figure under the Public Health Acts, and this is a further difficulty. It has been practically impossible to effect closure of insanitary property, though much requires drastic treatment.

Subletting of rooms is common. In several instances cellars, long condemned and closed, were discovered to be in full occupation again, having been sublet as separate dwellings.

Effect of Bad Housing.—Reference has already been made to the effect of bad housing and overcrowding upon the public health. It is of interest to summarise some of the points. Speaking generally, the wards with the highest populations per acre have also the highest death rates. The

converse does not always hold, as some wards, such as Walker, may have small densely packed areas scattered about among wide stretches of open space or farm land. The rates in these will be relatively high. But where the dwellings are evenly distributed and in good sanitary condition, and the population on area is low, the death rate is also low.

Thus the highest death rates from all causes are in St. John's, St. Andrews, All Saints', Byker, Stephenson, Elswick, Arthur's Hill and Benwell, and the lowest in Dene and Jesmond (which have less than half the rate in St. John's), St. Thomas', Fenham, and Heaton, which occupy respectively also the opposite ends of the scale in regard to quality of housing, and density of population (See Tables on pages 33 and 39).

Similarly infantile mortality generally follows the same rule, and the ward with the highest wastage of child life is again the most crowded one, viz., St. John's, with an infantile mortality rate of 165 deaths per 1,000 births, or practically one in six, as compared with a rate of 50, or one in 20, in Jesmond.

Over a period of nine years, the deaths per 1,000 births in one room, two room, and three room houses have been respectively 150, 122 and 107, and last year were 196, 147 and 113.

In the case of tuberculosis one sees again the influence of congestion and bad houses in the fact that the highest incidence for the year was in St. Nicholas', Armstrong, Stephenson, St. Anthony's, Benwell, All Saints', St. John's, Byker, and Westgate, the death rates in these wards all exceeding 2 per 1,000, the average for the City being 1.9, while the lowest incidence occurred in Dene, St. Thomas', and Jesmond.

Again, 28 per cent. of the population live in one and two room houses, yet over 35 per cent. of the deaths from consumption were among these.

And with this dearth of dwellings, what has been or what is being done? In 1915 practically nothing, while in 1916

the two small Corporation schemes in St. Lawrence Square and City Road, providing homes for 167 tenants only, were completed. A big scheme at Walker, that might have made a perceptible difference, has collapsed, in spite of the offer of financial support from the Government.

A scheme of temporary or semi-permanent artisan houses of excellent design has been carried out at the extreme west end of the City, by the Ministry of Munitions. 410 of these dwellings have been erected, and on the whole have proved satisfactory.

As will have been noticed previously (page 140), closet conversion has fallen off considerably, as has also, since war broke out, the number of nuisances dealt with by notice and otherwise, due, not to any lessening of the need for this work, but chiefly to lack of labour, and to the high price of building materials.

Statements of houses closed, demolished, or otherwise converted, and of new houses built during the year 1916, follow.

The Housing, Town Planning, etc., Act, 1909.

The house to house inspection which was being carried out under this Act has had to be discontinued entirely owing to the war.

Houses dealt with under the Newcastle-upon-Tyne Improvement Act, 1882, Section 32.

The following dwellings were dealt with informally as shown :—

SHOW II.

TENEMENTS.					No. of Houses.	No. of Holdings.	Tenants Displaced.
<i>Use as living room discontinued—</i>							
12, Oystershell Lane (bedroom)	...	...	1	...	1	...	—
13, Buckingham Street (back room)	...	...	1	...	1	...	—
<i>Nothing done—</i>							
56, 58, Buckingham Street (bedrooms)	...	...	2	...	2	...	—
8, Eldon Lane	...	...	1	...	1	...	—
Old Mill, Jesmond Dene	...	...	1	...	1	...	—
15, 17, Hanover Street	}	...	3	...	9	...	—
1, 2, 3, 4, Hanover Flats							
				9	...	15	—

CELLARS.

Use for sleeping discontinued—

153, Scotswood Road	...	...	...	...	1	...	1	...	—
69, Blenheim Street	...	...	...	...	1	...	1	...	—
7, Hill Street	...	...	...	...	1	...	1	...	1
6, 7, 11, Tindal Street	3	...	3	...	—

Front room closed, but back still occupied—

15, Trafalgar Street	1	...	1	...	—
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Total	...	16	...	22	...	1
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No. 21, Silver Street, proceedings in connection with which were not completed at the close of 1915, was closed during 1916.

Corporation Property in Ouseburn Valley.—In January, The Estate and Property Committee had under consideration the question of putting into repair for occupation some of the property in the Ouseburn Valley, and with that view the Property Surveyor was instructed to obtain tenders for the carrying out of such repairs to a block of eight houses in Marshall Street as would satisfy the requirements of the Sanitary Committee. The houses in question had been closed for some years. On the matter being brought to the notice of the Sanitary Committee, the Medical Officer of Health submitted the following report:—

These houses were gradually closed voluntarily by the Estate and Property Committee between 1906 and 1910 as not being worth the outlay necessary to make them satisfactory and sanitary dwellings. If that was the case *then*, and the late Medical Officer of Health strongly endorsed the view, it must be, and is, infinitely more so to-day.

The buildings show numerous signs of subsidence or landslide; many of them are damp, owing to dilapidations, loss of spouting, and probably to lack of damp-proof courses, and from this cause and from dilapidation would require the renewal of the greater part of their woodwork. Yard surfaces are all bad and broken, many collecting water close to the house walls and foundations. In the majority of the houses there are no water closets, such “conveniences” as there are

being mostly of the pail type. Furthermore, many houses would require their interiors to be remodelled, owing to the holdings being back-to-back, without through ventilation, and with "well" bedrooms of the worst type. Some of the staircases also are of the steep, dark, central kind, dangerous for young and old.

Apart from all these defects, which are remediable if sufficient money be spent upon them, the site of the houses is inherently bad, and very much worse now than when they were first closed. On all but the S.E. aspect the houses are enclosed in the angle formed by the Shieldfield bank of the Ouseburn Valley and the high wall of the steadily growing municipal refuse heap. This latter looms far above the tops of all but a few houses at the upper ends of the streets, and is so close that small boys throw stones from it down through the house windows. The stifling smell from the frequently smouldering rubbish is thus carefully secured to the inhabitants. What this is like is already well known to the householders of the relatively airy districts of Sandyford and Heaton.

To patch up and perpetuate rotten houses on an increasingly insanitary site would be a policy unworthy of the worst slum landlord, and it would be sheer folly for the Sanitary Committee to be a party to any scheme which would be a bad solution of present difficulties and a pregnant source of trouble in the immediate future.

For these reasons, therefore, the Medical Officer of Health has no hesitation in advising the Sanitary Committee to oppose most strongly any proposals for the reopening of property in Bryson Terrace, Marshall Street, or Morrison Street.

Of the total number of houses a proportion is still in occupation. While it is not suggested that the summary closure of these should be asked for during the present acute stage of the house famine, the Sanitary Committee should make it plain that an indefinite prolongation of their use for dwelling purposes would not meet with their approval.

The report was presented to the Sanitary Committee on 7th February, 1916, and was approved. The Medical Officer of Health stated that while the report dealt with all the houses in three streets, it applied equally to the block of eight houses, the reopening of which was under the consideration of the Estate and Property Committee.

The latter Committee decided on 14th February that having regard to the opposition of the Sanitary Committee no further steps be taken with regard to the repair of the houses referred to, and that the Property Surveyor be authorised to take advantage of suitable offers for the pulling down of the property and the disposal of the material.

Houses built during the Year 1916.—The following return of houses built during the year under report is supplied through the courtesy of the City Engineer:—

Ward.				Houses Self-contained.	Houses of Two Flats each.	
St. Nicholas'	...	...	...	—	...	—
St. Thomas'	...	...	...	—	...	—
St. John's	...	...	...	—	...	—
Stephenson	...	...	...	—	...	—
Armstrong	...	...	...	—	...	—
Elswick	...	...	...	—	...	—
Westgate	...	...	...	—	...	—
Arthur's Hill	...	...	...	—	...	—
Benwell	...	...	...	1	...	—
Fenham	...	...	...	9	...	—
All Saints'	...	...	...	—	...	22
St. Andrew's	...	...	...	—	...	—
Jesmond	...	...	...	2	...	—
Dene	...	...	...	3	...	—
Heaton	...	...	...	—	...	—
Byker	...	...	...	7	...	52
St. Lawrence	...	...	...	—	...	8
St. Anthony's	...	...	...	—	...	—
Walker	...	...	...	—	...	—
Total ...				22	82*	

* These figures include the Walker Road, St. Lawrence Square and Sallyport Crescent Housing Schemes.

New accommodation has thus been provided for 186 families, or at the rate of 5 persons to a family, 930 persons, as compared with accommodation estimated for 690 persons provided during 1915, and 545 during 1914.

Tenement Bye-laws.—The number of tenemented houses in the City is 3,523, containing 9,970 holdings, as follows :—

1 Room.	2 Rooms.	3 Rooms.	4 Rooms.	5 Rooms.	Total.
3,328	5,462	1,067	112	1	9,970

As stated elsewhere, greater attention has been paid to the inspection of the dwellings of the poorer class.

The tenement holdings have again been fully occupied throughout the year, the demand for houses referred to last year having been maintained, and, if possible, intensified, chiefly by persons employed on work incidental to the war.

Many of the houses have been occupied to the fullest extent permitted by the Tenemented House Bye-laws, and a few cases of actual overcrowding have been found and dealt with.

This has been due, in many instances, to people coming from outside districts to work in the City or neighbourhood, and who, being unable to get houses of their own, have been taken in by relatives or friends already resident here.

The present congested state of the City, both in the tenements and other dwellings, calls for increased vigilance on the part of the inspecting staff, whose responsibilities have not been diminished but rather augmented in consequence of the war.

There is no doubt, whatever, that the standard of cubic space required by the Tenement Byelaws is utterly inadequate for health, and in any case it does not apply to self-contained dwellings, many of which are greatly overcrowded. During the year under report, the Medical Officer of Health was asked by the Housing Committee, in view of the confusion that exists in the regulations applying to the various municipal properties, to state what he considered to be a reasonable standard for application to all of these. The reply was as follows :—

“ I think a fair working standard would be two adults per room, two children not exceeding ten years

of age to count as one adult (this is the standard of age generally adopted in Model Bye-laws, and appears to me a good one). Generally speaking, the space in the rooms under discussion varies from 1,000 to 1,400 cubic feet, by no means a generous allowance for two persons. Where the room is larger, *e.g.*, in the bedrooms of the Gap houses in Walker Road, an extra child under ten years might be permitted.

I do not agree with the recommendation of 21st June, 1909, that two adults and two children be allowed to each single room tenement. I am strongly of opinion that under no circumstances should the standard I suggest above, *i.e.*, two adults or one adult and two children under ten, be exceeded; indeed it is undesirable that children should be housed in single room holdings at all. Such accommodation should be restricted to old folks.

I fear that the enforcement of this standard at the present time is hardly practicable, but even so I think it should be adopted in principle forthwith, and rigidly adhered to after the war, when the pressure on existing housing accommodation may be somewhat relaxed."

In view of the great difficulties resulting from the present conditions, the Committee, while approving generally of the principles recommended, felt that it would be impossible to enforce them at the present time, and accordingly decided to postpone their final consideration of the recommendations until a more favourable opportunity.

With regard to the limewashing of tenemented property twice a year, it has become increasingly difficult to get this work carried out owing to shortage of labour. Whilst this is so, and whilst the enforcement of the bye-law entails a large amount of labour on the part of the Health Department officers (8,025 visits being made during the year for this purpose alone), the Inspector considers that such limewashing

is of considerable benefit—from a sanitary point of view—to the class of dwelling in question. By its means, the surroundings are cleansed and purified, to some extent at least, the means of light assisted, and, by the brighter appearance generally, some encouragement given to tenants to follow the example by cleansing and limewashing the interiors of their rooms. With this view it is desirable that the work should be carried out as far as it is possible to do so.

In the great majority of instances, the requirements of the Bye-laws in this respect were ultimately complied with without having to resort to legal proceedings. In 13 cases, however, it was necessary to apply for summonses before the work was carried out.

As previously, circular letters of reminder were issued to all owners of this class of property, together with personal interviews, etc., where necessary.

Customs and Inland Revenue Act, 1890, Sec. 26 (2).—

One application respecting a house for a certificate entitling the owner to exemption from inhabited house duty was made to the Medical Officer of Health during the year. The certificate was not granted.

New Buildings and Sanitary Alterations.—171 plans were examined by the Medical Officer of Health before their submission to the Town Improvement and Streets Committee and approved or otherwise by the Medical Officer of Health, and forwarded to the City Engineer for his consideration, as compared with 180 during the previous year.

COMMON LODGING HOUSES.

The number of registered common lodging houses in the City at the end of the year was 62, as in 1915.

In accordance with the requirements of the Newcastle-upon-Tyne Corporation Act, 1911, applications were received, at the beginning of 1916, for the re-registration of 61 of these houses, all of which were registered as desired, up to the end of the year.

One application received in respect of a house not previously used as a common lodging house was also granted.

The houses generally have been well conducted. Those in the Central and Western parts of the City, in the neighbourhood of munition works, have been fully occupied, whilst those in the East Central district have been occupied more sparsely. This was more pronounced towards the end of the year, as more men were called to the colours.

Taking the City as a whole, the accommodation provided has always been in excess of the demand.

The total number of lodgers for which the houses were registered was, at the close of the year, 2,138, as against 2,182 at the end of 1915. The average number of lodgers per night was 1,701, the highest and lowest numbers on any one night being 1,896 and 1,463 respectively.

The Assistant Inspectors of Common Lodging Houses also obtain samples of water and milk for bacteriological examination, and collected 196 of the former and 378 of the latter during the year. These officers also take smoke observations, and assist the Food and Drugs and District Inspectors when required.

REGISTERED COMMON LODGING HOUSES.

SUMMARY OF WORK DONE AND VISITS MADE DURING THE YEAR 1916.

Number of Houses on the register at the end of the year	...	62
Applications for registration (all granted)	...	62
Existing houses re-registered (Newcastle Corporation Act, 1911, Sec. 63)	...	61
New houses registered	...	1
Inspections made in the day-time	...	11,348
„ „ night-time	...	604
Notices served { re washing of bed clothes 244 „ limewashing of houses 122 }	...	366
Contravention of Bye-laws, &c. :—		
Premises not limewashed during prescribed periods	...	2
Beds and bedding dirty or defective	...	18
Structural defects in houses	...	17
Defective water-closets and drains	...	33
Choked drains, water-closets, &c.	...	9
Defective roofs and choked or defective spouting	...	27
Want of or defective dustbins	...	6
Accumulation of refuse	...	1
Insufficient ventilation to rooms (broken window cords, &c.)	...	9
Number of Prosecutions	...	None
Deaths reported (non-infectious disease)	...	10
Cases of infectious disease reported (all tuberculosis)	...	28

LODGERS OCCUPYING COMMON LODGING HOUSES IN THE CITY
DURING THE YEAR 1916.

	Year 1916.	Corresponding Nos. for Year 1915.
Average number of Lodgers per night	1,701	1,804
Highest number on any one night	1,896	1,939
Lowest „ „ „	1,463	1,546
Number of Lodgers for whom accommodation was provided in the Common Lodging Houses of the City at the end of the year	2,138	2,182

FACTORIES AND WORKSHOPS.

FACTORY AND WORKSHOP ACTS.—There are on the Register 1,195 workshops, besides a large number of domestic workshops, workplaces, laundries, and bakehouses.

Particulars as to the number and nature of the various trades carried on, the number of inspections made, defects found, out-workers, &c., are given in the following Tables.

During the year, 93 lists of outworkers have been received, 32 employers having sent in lists twice, and 29 employers once.

Included in the lists so received, were 192 names and addresses of out-workers employed in districts outside the City. These were duly forwarded to the respective districts, as required by law.

Eight notices as to insanitary conditions in factories have been received from His Majesty's Inspectors of Factories. The matters referred to were duly investigated and dealt with by service of notice, &c., the results being reported to the Inspectors of Factories as required by the Act.

In connection with the withdrawal of men for service in His Majesty's forces and their replacement by women, the Health Department has recognised the importance of seeing that sufficient and suitable sanitary accommodation is provided for the separate use of each sex, and is pushing forward the provision of such accommodation in business places where both sexes are now being employed. A circular letter was sent out to all employers in the City, and where the reply was unsatisfactory a personal visit was made by a member of the staff.

ADMINISTRATION OF THE FACTORY AND WORKSHOP ACT, 1901,
IN CONNECTION WITH FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK,
DURING THE YEAR 1916.

Home Office Tables.

1.—INSPECTION.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR
INSPECTORS OF NUISANCES.

PREMISES. (1)	NUMBER OF		
	Inspections. (2)	Written Notices. (3)	Prosecutions. (4)
Factories (Including Factory Laundries.)	77	309	—
Workshops (Including Workshop Laundries.)	4,376		
Workplaces (Other than Outworkers' premises included in Part 3 of this Report.)	508		
Total	4,961	309	—

2.—DEFECTS FOUND.

PARTICULARS. (1)	NUMBER OF DEFECTS.			Number of Prosecu- tions. (5)
	Found. (2)	Remedied. (3)	Referred to H.M. Inspector. (4)	
<i>Nuisances under the Public Health Acts:—*</i>				
Want of cleanliness	129	127	—	—
Want of ventilation	3	3	—	—
Overcrowding	2	2	—	—
Want of drainage of floors	—	—	—	—
Other nuisances	63	62	—	—
†Sanitary (insufficient	13	12	—	—
accommodation { unsuitable or defective	35	32	1	—
{ not separate for sexes	8	7	—	—
<i>Offences under the Factory and Work- shop Act:—</i>				
Illegal occupation of underground bakehouse (s. 101)	—	—	—	—
Breach of special sanitary require- ments for bakehouses (ss. 97 to 100) }	38	39	—	—
Other offences (Excluding offences relating to out- work which are included in Part 3 of this Report.)	—	—	—	—
Total	291	284	1†	—

* Including those specified in sections 2, 3, 7 and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

† Sec. 22 of the Public Health Acts Amendment Act, 1890, is in force. The standard fixed by the Sanitary Accommodation Order (No. 89) of 4th February, 1903, is followed as a model.

‡ Relating to a Factory.

Note.—When the number of defects "remedied," column (3), exceeds the number of defects "found," column (2), this is accounted for by certain defects included in the previous report having since been remedied.

FACTORY AND WORKSHOP ACTS.—Continued.
3.—HOME WORK.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.							OUTWORK IN UNWHOLESOME PREMISES, SECTION 108.			OUTWORK IN INFECTED PREMISES, SECTIONS 109, 110.		
	Lists received from Employers.				Prosecutions.			Instances.	Notices served.	Prosecutions.	Instances.	Orders made (Section 110.)	Prosecutions (Sections 109, 110.)
	Twice in the Year.		Once in the Year.		Failing to keep, or permit inspection of Lists.		Failing to send Lists.						
	Lists.†	Outworkers.†	Lists.	Outworkers.	(9)	(10)							
	(1)	(2)	Con-tractors (3)	Work-men. (4)	(5)	Con-tractors (6)	Work-men. (7)	(8)	(11)	(12)	(13)	(14)	(15)	(16)
Wearing Apparel, Making, &c.	60	14	183	320	28	1	62	3	3	Nil.	† 2	Nil.	Nil.
Paper Bags, etc.	2	...	10	...	...	...	...	...	...	...	...	...	...
Brush Making	2	...	3	...	...	...	...	...	...	...	...	...	...
Furniture and Upholstery	...	...	2	1	1	...	...	...	...	...	...	...	...
Total	48	14	198	321	29	1	62	3	3	...	2	...	...

NOTES.—† The figures in columns (2), (3), and (4) are the total number of lists (received from employers who sent them both in February and August as required by the Act) and of the entries of names of outworkers in those lists. They are, therefore, double of the number of such employers and (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name is often repeated.

In one case, an occupier gave outwork of more than one class. The list is therefore included in column (2) against the principal class only, but the outworkers are assigned in column (4) into their respective classes.

Columns (3), (4), (6), and (7)—Employers seldom state whether their Outworkers are "Contractors" or "Workmen," hence the numbers given above may not be properly divided.

§ In 43 of these cases the lists of outworkers were not received in the month of February or August as required by the Act, but in every such case they were subsequently received on the employers being reminded of their default. In the remaining 19 instances (of failing to keep or permit inspection of lists of outworkers) notice was also given and complied with.

* In each case the Notice was served upon the Outworker, and was duly complied with.

† One of these was a case of Enteric Fever, the patient (a child of the outworker) being removed to Hospital and the necessary disinfection carried out under the direction of the Medical Officer of Health, the other was a case of Phthisis, also under the observation of the Medical Officer of Health.

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year. (1)	Number. (2)
Workshops	1,195
Domestic Workshops	240
Workplaces	238
Laundries	44
Bakehouses	230
Total ...	1,947

5.—OTHER MATTERS.

CLASS. (1)	Number. (2)
Matters notified to H.M. Inspector of Factories:—	
Failure to affix Abstract of the Factory and Workshop Act (sec. 133)	7
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5). {	
Notified by H.M. Inspectors ...	8
Reports (of action taken) sent to H.M. Inspectors	8
Other:—	
Underground Bakehouses (s. 101):—	
Certificates granted during the year	—
In use at the end of the year	12

6.—TRADES.

Particulars as to the number and nature of the various trades carried on in the workshops of the City.

TRADES.	Work-shops.	Domestic workshops (including domestic bake-houses and laundries).	Work-places.
Ærated Water Manufacturers, Beer bottling, etc.	7	...	9
Artificial Stone, Asphalte, Bitumen Solution, Enamel and Cement making	5	...	...
Athletic Outfitters... ..	3	...	...
Bacon Washing	10	...	4
Bags, Baskets, Trunks, Brushes (making and repairing)	14	1	...
Bakehouses	110	120	...
Bouquets and Wreath making	14	...	...
Bedsteads, Bedding and Mattress making	1	1	6
Bicycle making and repairing	28	5	...
Blacksmiths and Locksmiths	44	...	...
Boat Building	3	12	...
Carried forward ...	239	139	19

6.—TRADES.—*continued.*

TRADES.	Work-shops.	Domestic workshops (including domestic bake-houses and laundries).	Work-places.
<i>Brought forward</i> ...	239	139	19
Boots, Shoes, Slippers (making and repairing)	146	24	—
Carts, Carriages, Coaches, Barrows (making and repairing)... ..	12	—	6
Carpets, Canvas, Water Proof Cover making...	6	—	—
Chemical Works	2	—	—
Confectionery making	9	1	—
Coopers	6	—	—
Cork Cutters	2	—	—
Currants and other Fruit packing and cleaning	4	—	—
Cigarette making and Pipemaking and repairing	3	—	—
Dressmaking, Milliners, and Mantle Makers ...	190	108	—
Drysalters	4	—	—
Engravers	5	—	—
Engineers, Electric Heating and Cooking, etc.	24	—	—
Firewood Cutting and Firelighter Makers ...	4	—	1
Fish Curers	2	—	—
Furniture, Automatic Seats, French Polishing and Upholstery	49	6	—
Grain, Ice, Meat, Onions, Oil, packing and storage	24	—	25
Harness making and repairing	12	—	—
Hide and Skin Dealers	—	—	4
Instruments—Mathematical, Musical, etc. (making and repairing)... ..	6	—	—
Jewellery, Watches, Clocks, (making and repairing)	50	—	—
Joiners, Handrailers, Ladder Makers, and Wood Carvers and Turners	62	6	—
Lamp Making and repairing	1	—	—
Laundries	33	11	—
Marble Masons and Monumental Sculptors ...	9	—	—
Marine Stores	15	—	29
Miscellaneous Warehouses and Workshops, (which include repairing umbrellas and guns, preparing cattle food and medicine, dressing leather, packing eggs, lard rendering and gut scraping)	17	1	27
Painters' Workshops, and making and bottling Paint and Varnish	19	—	—
Photographers	23	3	—
Pickle and Sauce making	6	—	—
Picture Framers and Gilders	11	—	—
Plasterers, Lath rendering	3	—	—
Plumbers, Gas Fitters and making and repairing Sanitary Pipes and Fittings... ..	66	3	1
Restaurant kitchens	—	—	82
Rubber Stamps and Tyres (making and repairing)	2	—	—
<i>Carried forward</i> ...	1,066	302	194

6.—TRADES—*Continued.*

TRADES.	Work-shops.	Domestic workshops (including domestic bake-houses and laundries).	Work-places.
<i>Brought forward</i> ...	1,066	302	194
Scales, Weighing Machines and Sewing Machines (making and repairing) ...	8	...	...
Sign Boards, Sun and Venetian Blind (making and repairing)... ...	4	...	...
Stained Glass making ...	5	...	...
Stables (Livery, etc.) ...	...	...	33
Tailors ...	189	46	...
Taxidermists, Fur pulling and cleaning ...	6	...	...
Tea Blending and Packing ...	5	...	...
Ticket Writers ...	7	1	...
Timber Yards ...	...	...	11
Tin, Iron Plate and Wire Workers ...	14	1	...
Tripe Dressers ...	6	...	...
Typewriting Machines (repairing) ...	4	...	...
Underclothing (making) ...	24	21	...
Totals ...	1,338	371	238

COUNCIL SCHOOLS.

Sanitary Inspection of Council Schools.—117 inspections of these schools have been made during the year. At 9 schools, insanitary conditions were found. (For particulars see page 144). The matters in question were duly reported to the school authorities.

THE RAG FLOCK ACT, 1911.

In pursuance of this Act, 9 samples of rag flock have been purchased and submitted for analysis to the Public Analyst. Three of these did not conform to the standard of cleanliness laid down by the Local Government Board in their Regulations under the Act, (containing 31, 33, and 33 parts respectively, of chlorine per 100,000 of flock).

The vendors were cautioned by order of the Sanitary Committee.

For particulars of work done under the *Food and Drugs Acts*, see pages 128A-130.

In conclusion, it affords me pleasure to acknowledge the satisfactory manner in which the members of the staff have carried out their many and varied duties throughout the past year, which has been one of increased difficulty in consequence of the continuance of the war.

I am, Sir,

Your obedient Servant,

W. HUDSPETH,

Health Department,

Town Hall.

Inspector of Nuisances,

Common Lodging Houses, &c.

